TECHNOLOGY DEPT.

Gas Journal

Vol. 266. 103rd Year. LONDON, MAY 2, 1951 No. 4587. Price 1/-
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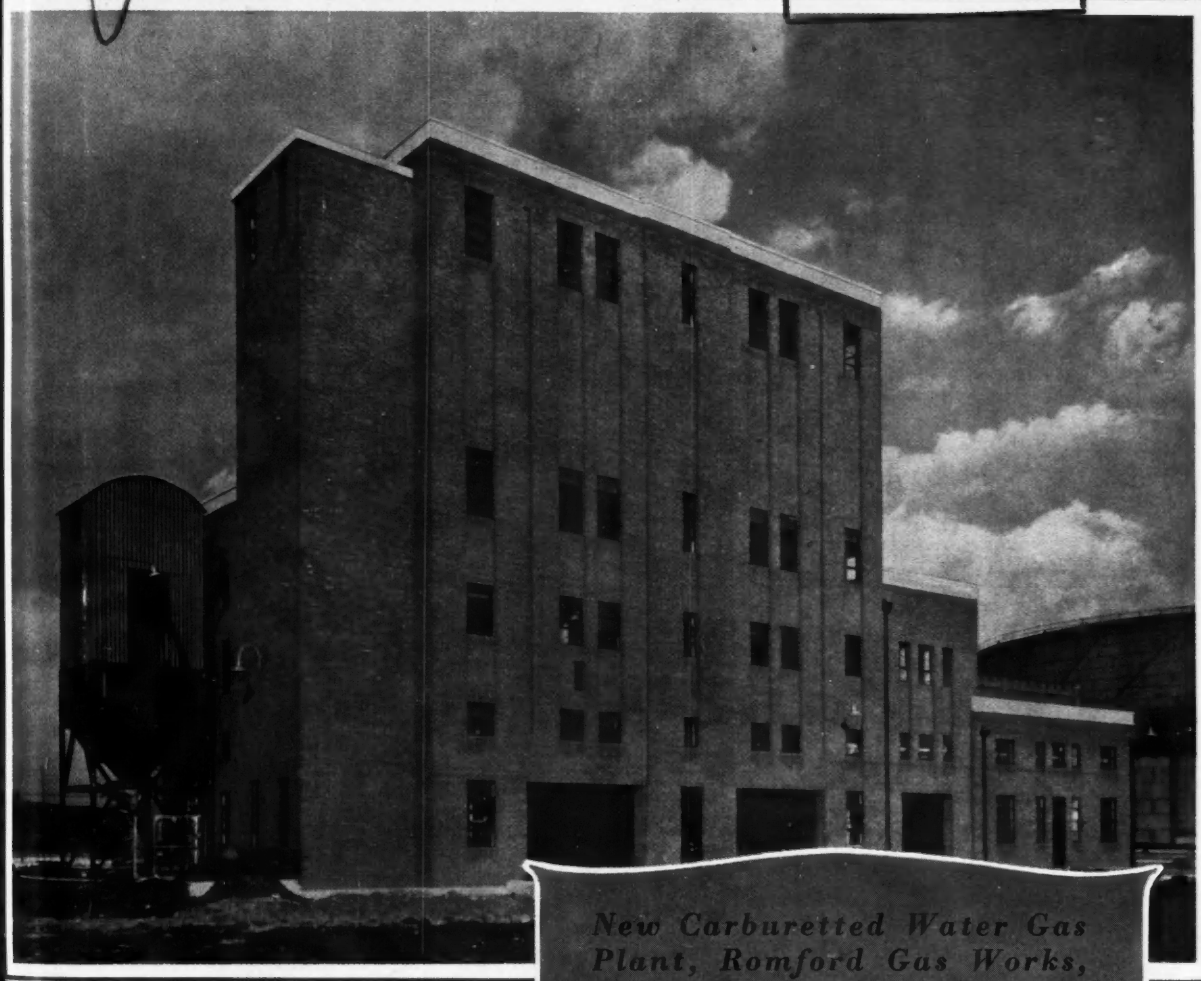

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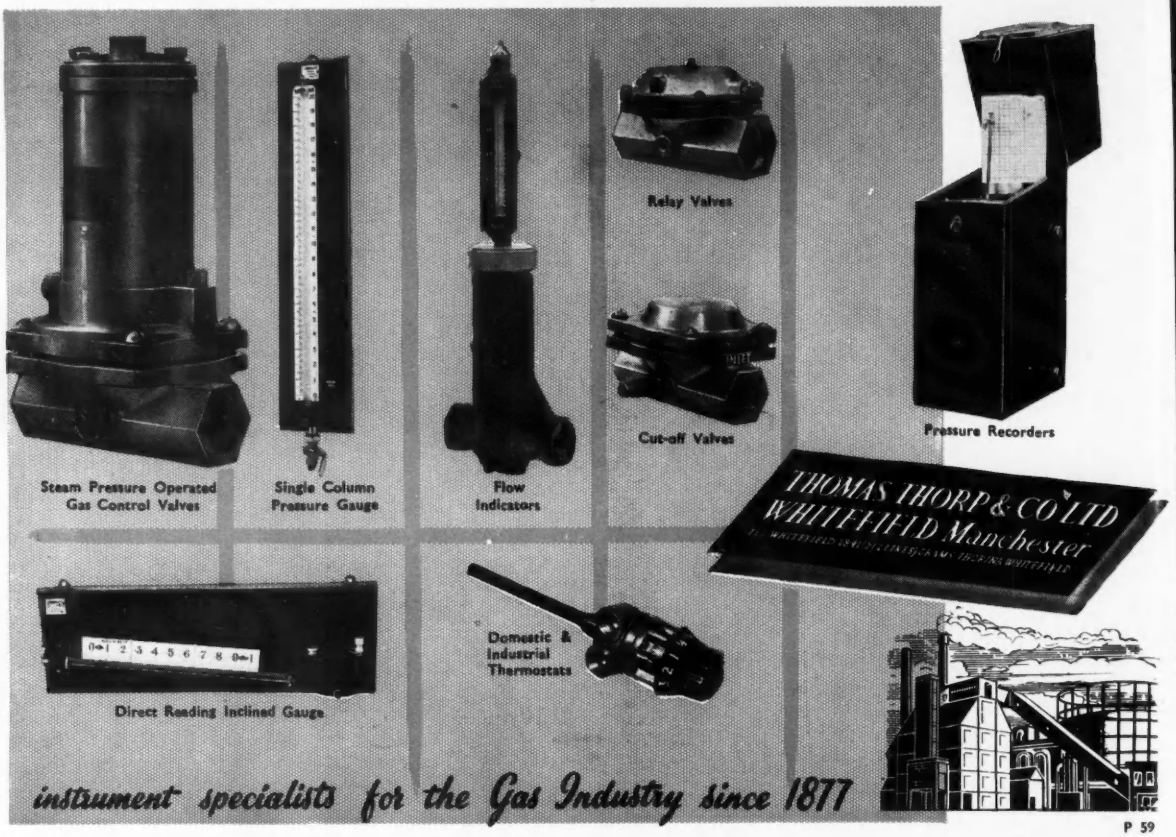

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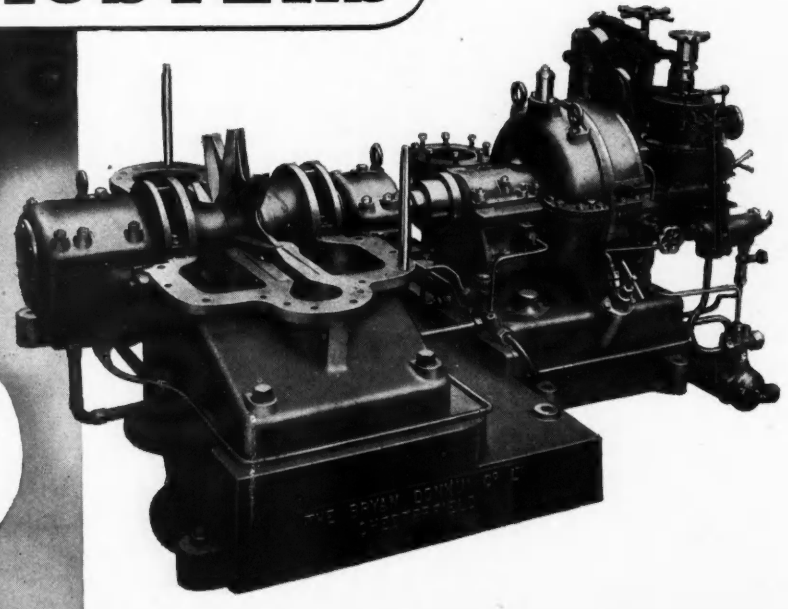
EXHAUSTERS



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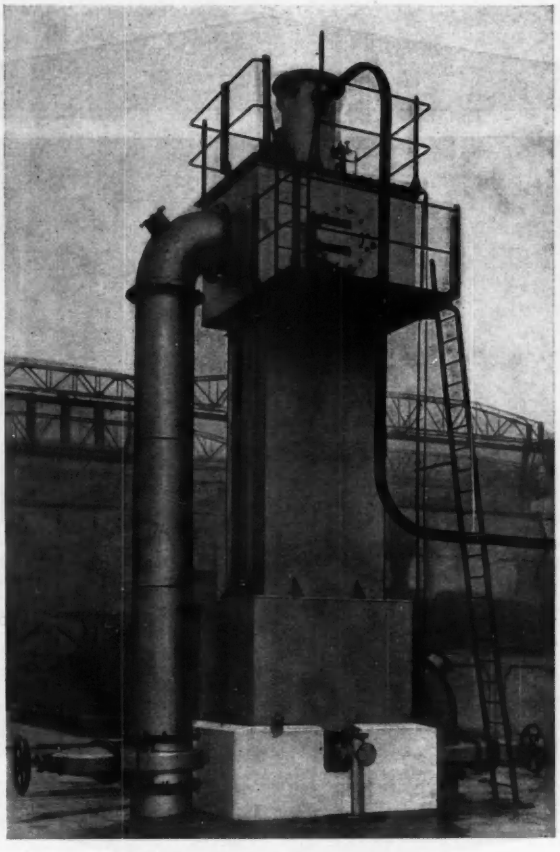

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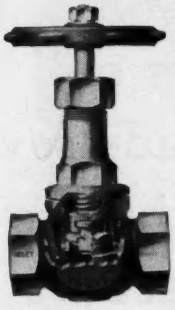

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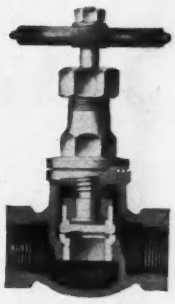

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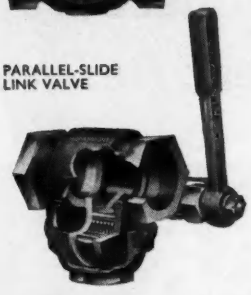

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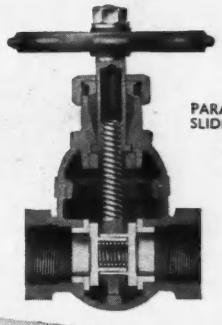

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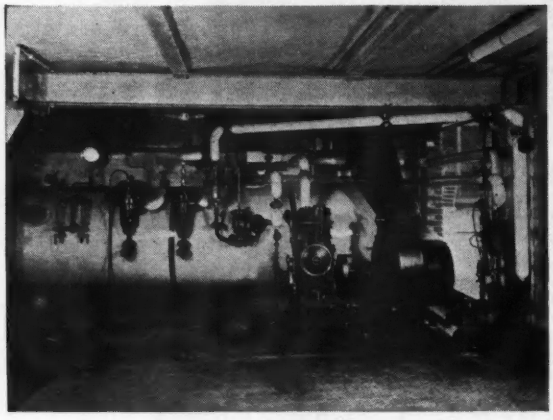

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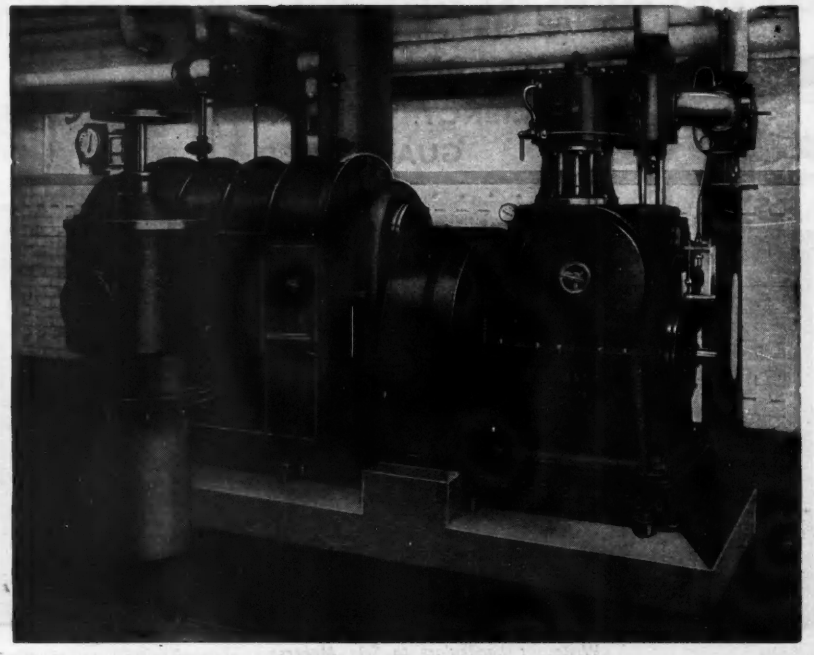

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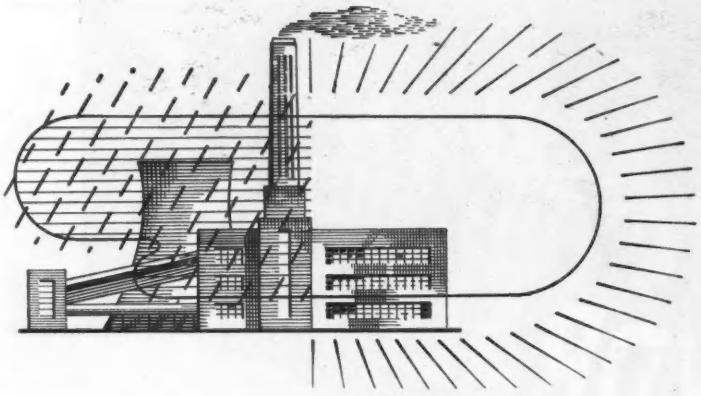

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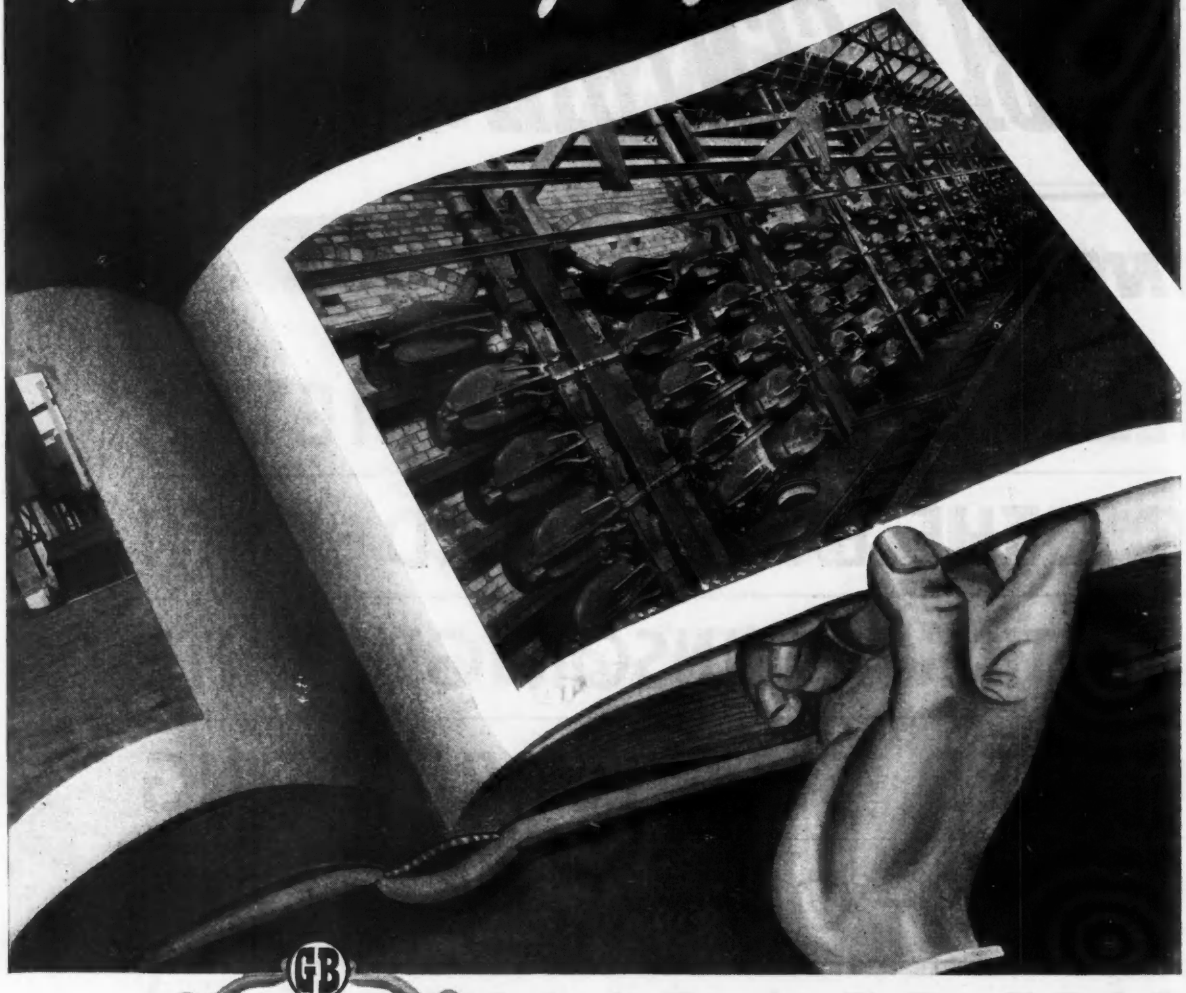

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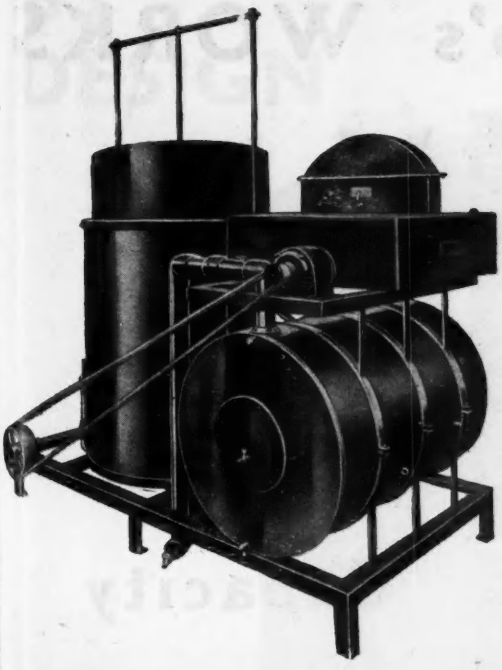

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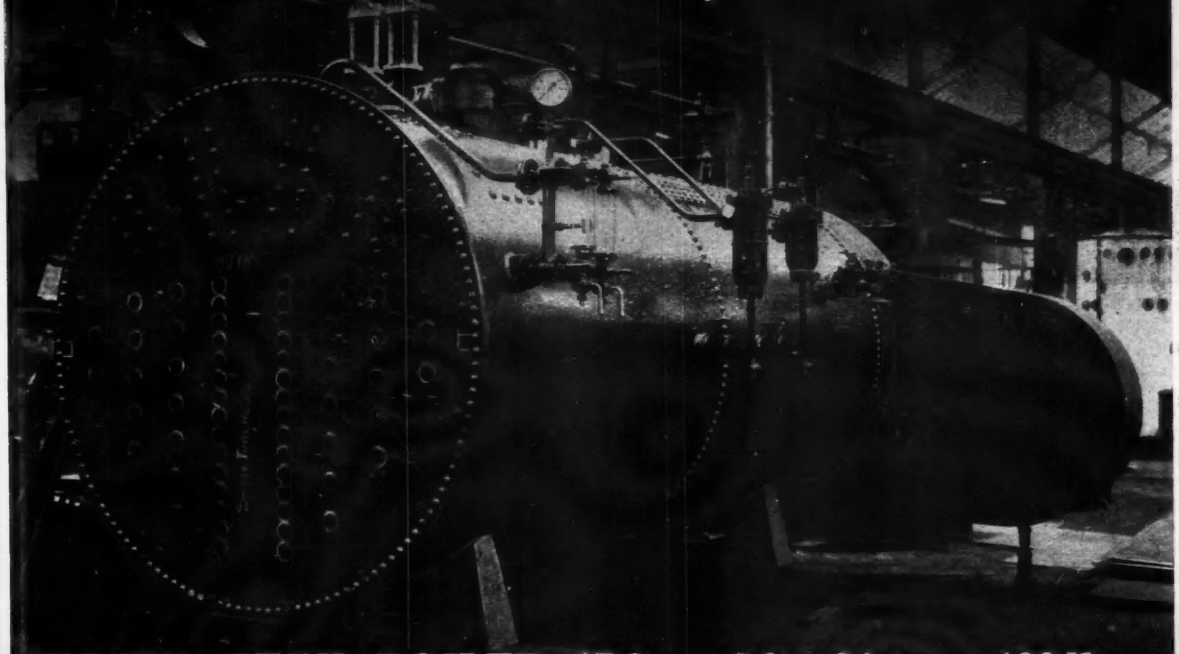

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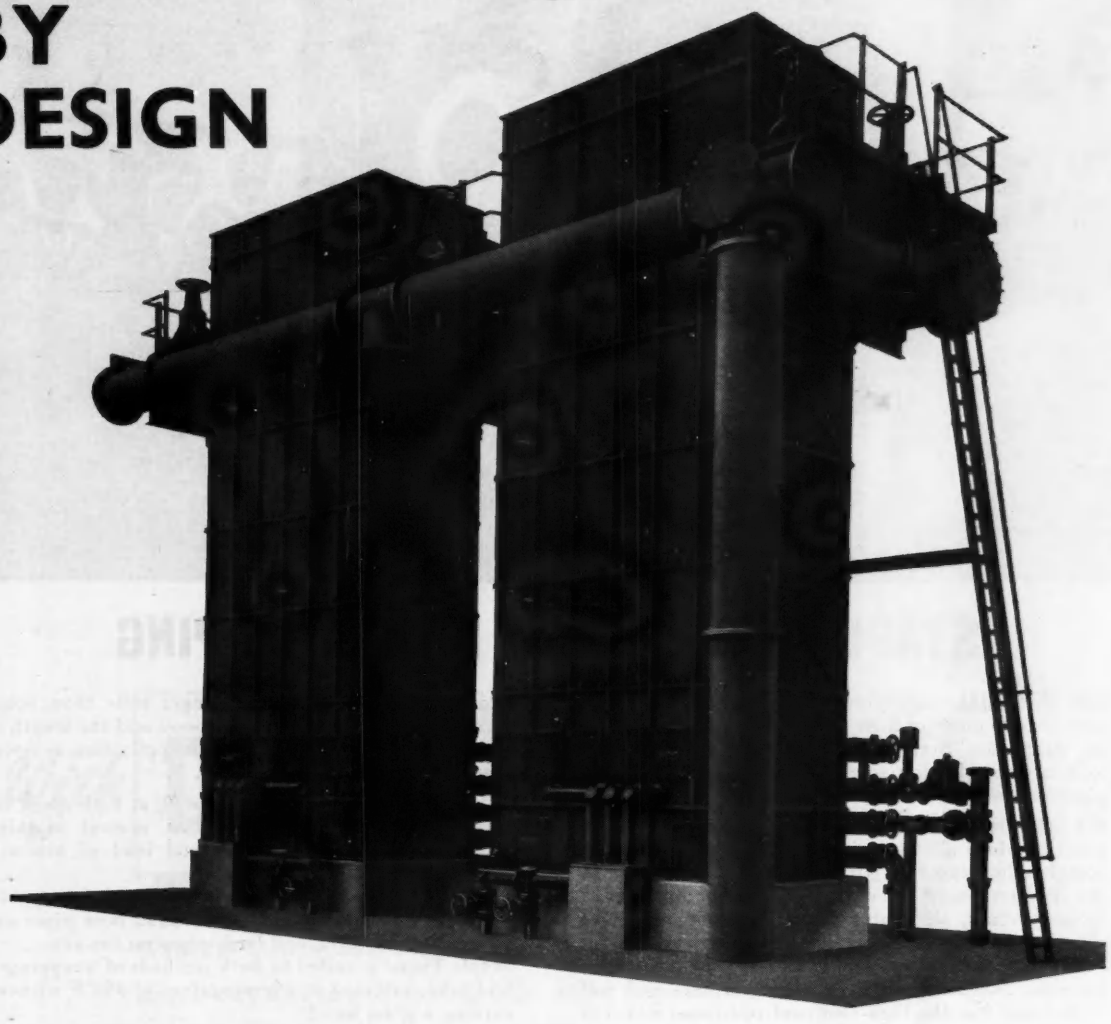

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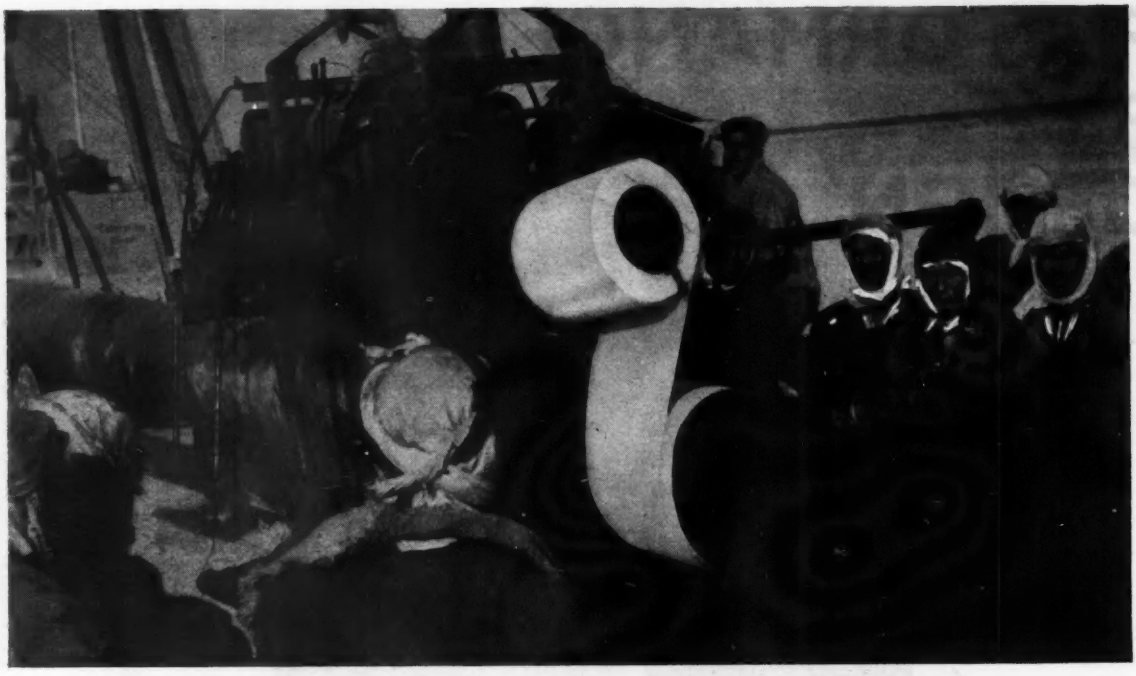

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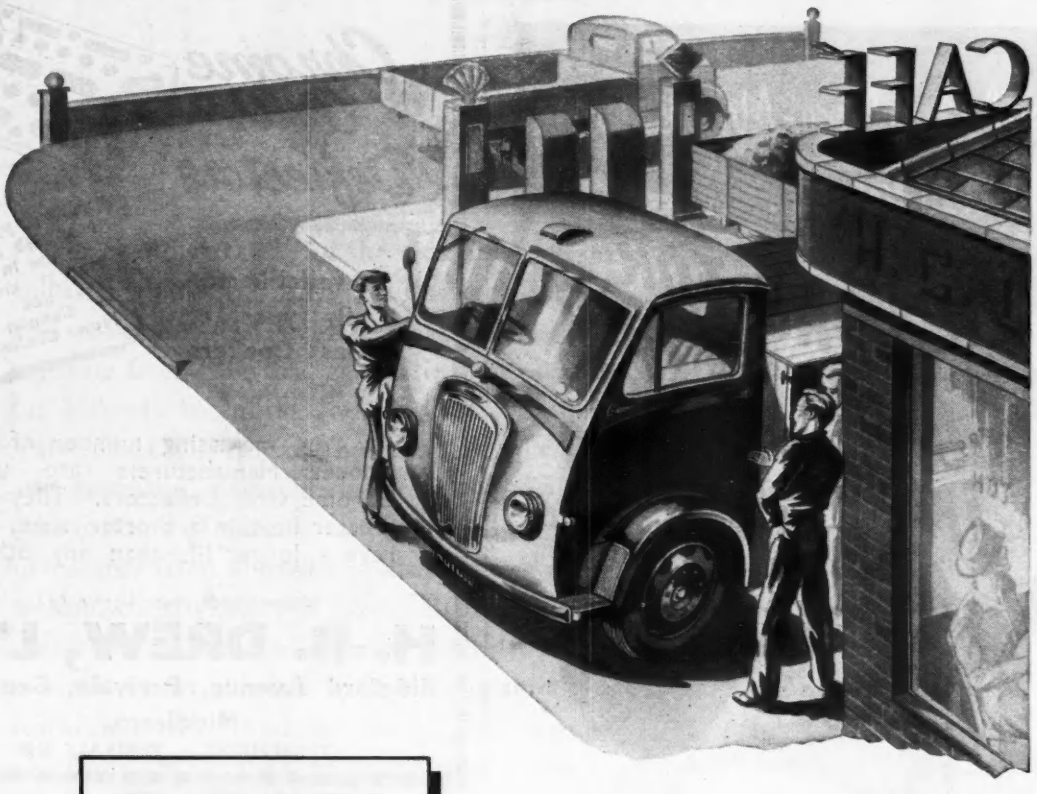

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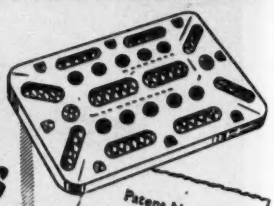

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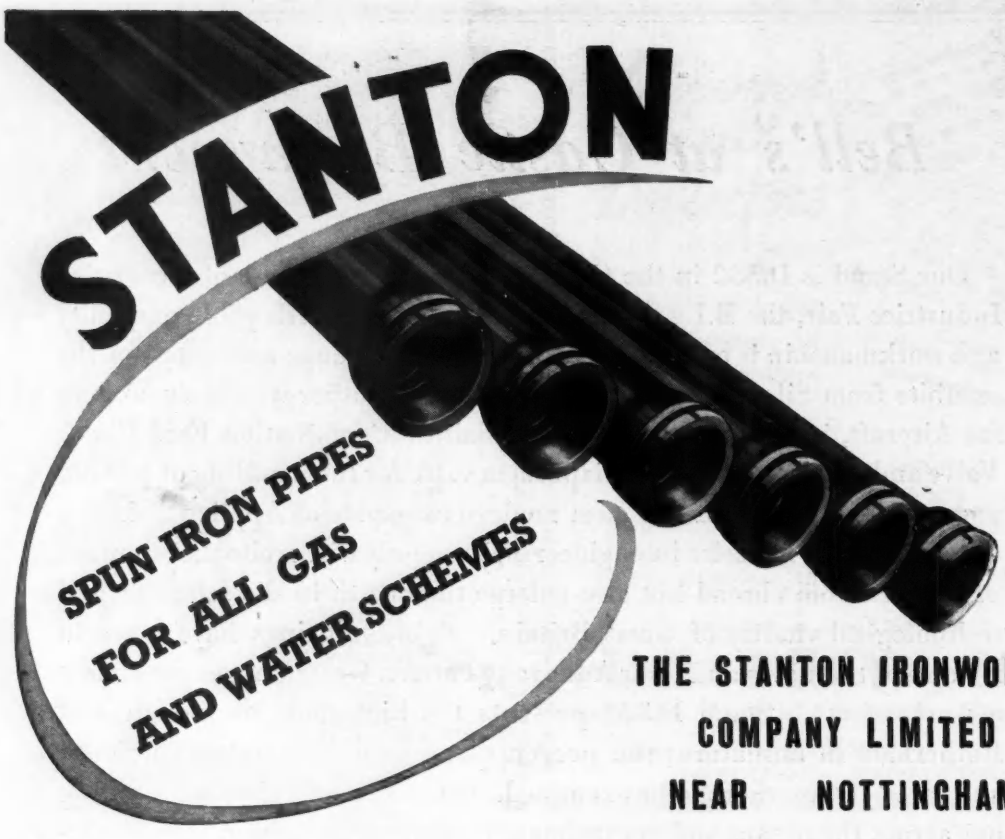

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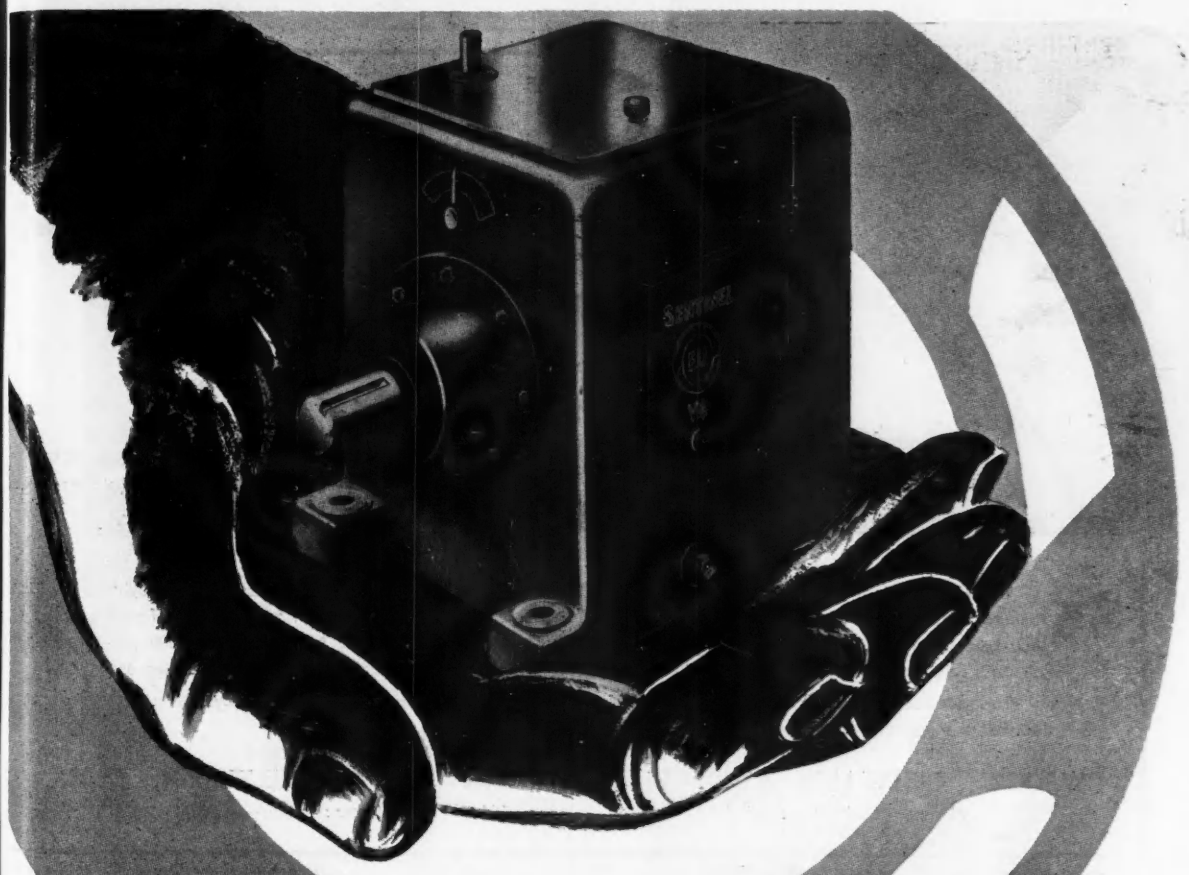

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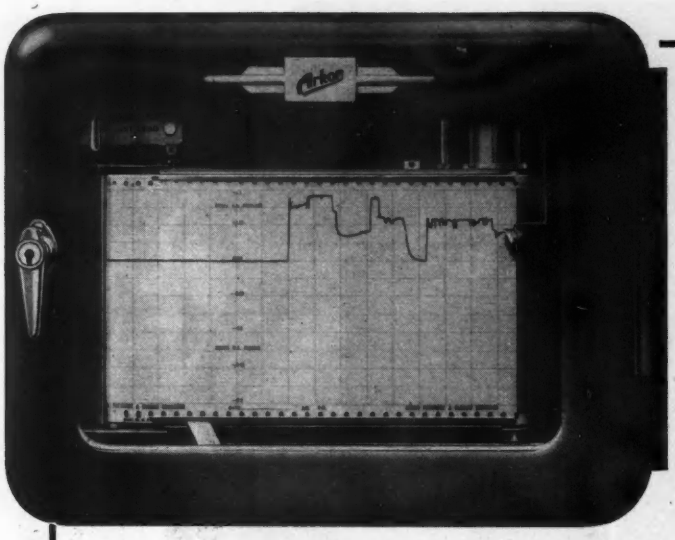

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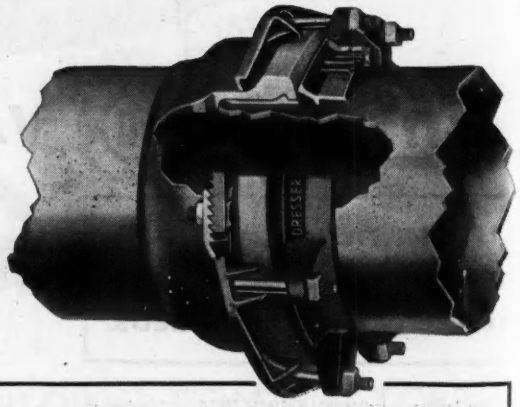

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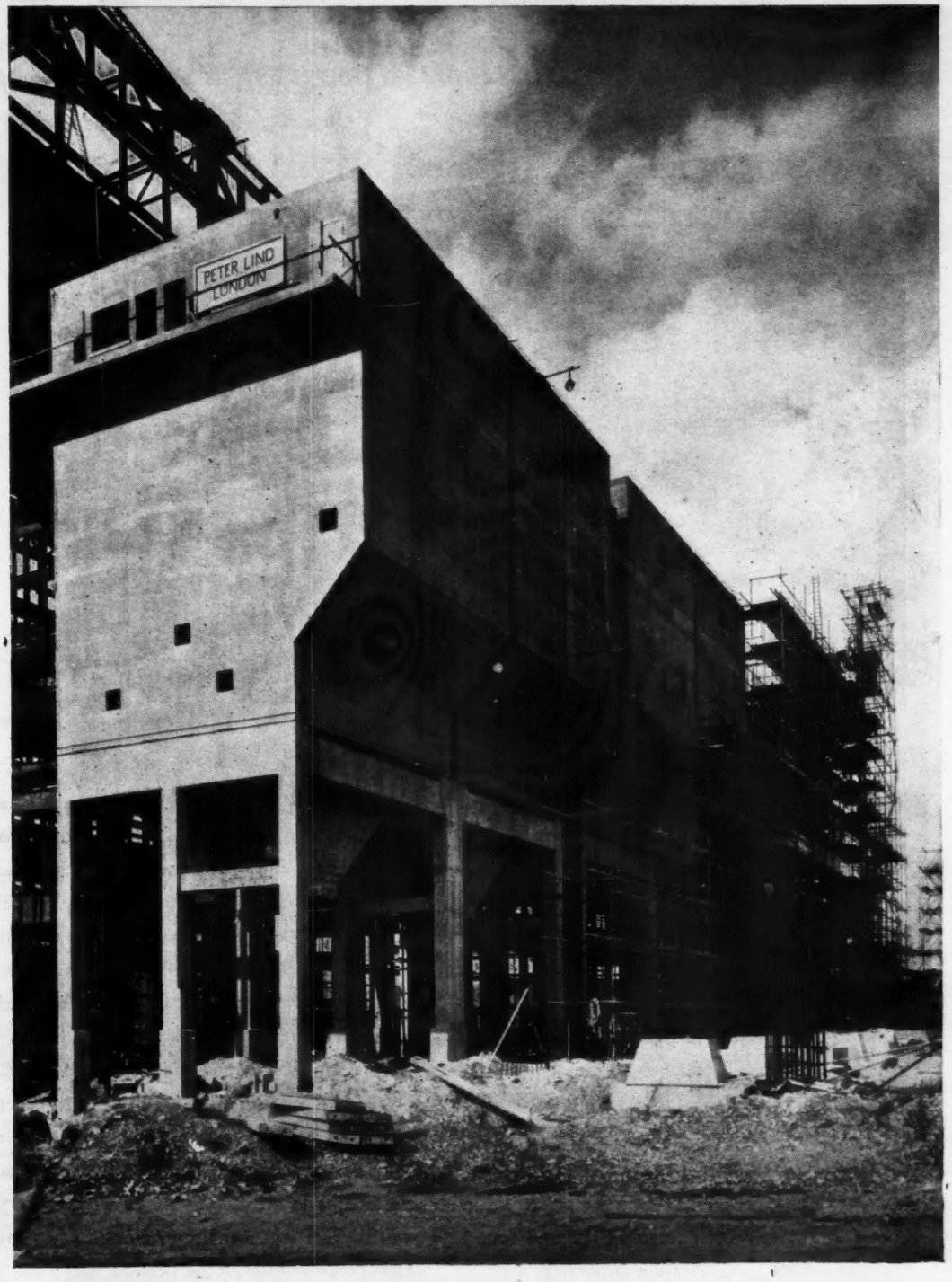

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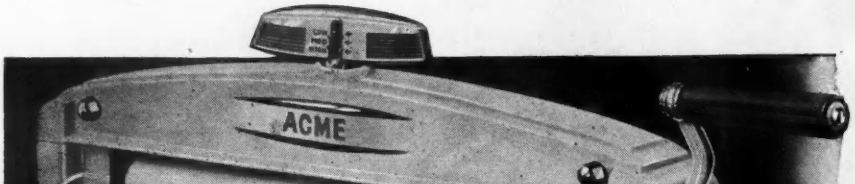

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GAS JOURNAL

VOL. 266. NO. 4587 103RD YEAR MAY 2, 1951

PROBLEMS OF INDUSTRIAL HEALTH

THERE is something about industrial medical officers. A few months ago we published in these columns an appreciation of the witty and racy address given to the London Juniors by Dr. H. S. Crighton Starkey, Medical Officer to the North Thames Gas Board. Recently we heard a second medical man, Dr. M. W. Goldblatt, deliver an equally entertaining and provocative address to the Chemical Engineering Group of the Society of Chemical Industry. No doubt in the company of their medical colleagues these gentlemen are serious enough, but faced with the prospect of addressing laymen—and even the most erudite engineer is a child in the realms of medicine—they must perforce resort to the lighter touch. As a medical officer in the I.C.I. organisation, Dr. Goldblatt is greatly interested in the problems of industrial health; and he described some of these problems with such a blend of sincerity, cynicism, wit, and, above all, ease of delivery, as to be wholly irresistible.

There was, he explained, a fundamental difference between the ordinary doctor and the doctor in industry. The former dealt with a sick man, while the latter dealt with a man who had no symptoms and was not ill. If symptoms occurred, then the doctor had failed. His job was to prevent the circumstances which might lead to illness, in the belief that prevention was better than cure. That meant that he must carry out his investigations before the symptoms appeared, and Dr. Goldblatt gave several instances of the diverse ways in which that could be done. Man, he said, was never conceived to be in a chemical factory, yet man's adaptability was astonishing; he inhaled, swallowed, and absorbed manifold compounds, usually without ill effect. It was, however, the medical officer's job to apprehend where the limits of his adaptability lay.

For the worker in the chemical industry the author clearly had a genuine concern. In the management and its problems he was less interested: 'After all, industry does not belong to the employer any more', and later, 'It is always so much easier to blame the management than the trade union.' He reminded us that proper works amenities were of extremely recent origin. Only a few years ago they consisted—if they existed at all—of a bucket for washing, a latrine, a dirty cubbyhole called a changing room, and a gloomy messroom. To-day things are changed, but a hint of contempt crept into Dr. Goldblatt's voice when he referred to the smile of unction and satisfaction which suffused the manager's face when showing visitors the amenities of a works. He agreed that 'Amenities Make Men', but as Joad would have it, it depended on what was meant by amenities.

Cleanliness and comfortable working conditions were so essential in the scheme of industrial health that they needed no elaboration. What *was* needed, however, was an attempt to educate workers along certain lines. He had never known a chemical worker who became a chemist; indeed, the chemical worker, who frequently did a job which was potentially hazardous, had no idea what he was motivating. All safety appliances were, fundamentally, a nuisance, inhibiting men's power to work. Men disliked them, ignored their use when possible, and frequently failed to understand their purpose. As an example he instanced men working in caustic liquor who, because they wore wellington boots, considered themselves safe; the possibility of liquor getting in the tops of the boots escaped them—simply because they had never thought about it. 'It is the most pathetic thing on earth," said Dr. Goldblatt, 'to see a man who thinks with his stomach, who cannot formulate his ideas; such a man is a dead man.' Real amenities, he suggested, were those which encouraged the men to master the three R's, and enlarge their sphere of interest. By means of films and simple laboratory demonstrations in glass they should be enabled to gain some impression, necessarily visual, of the processes they were activating. On the other hand, he clearly suspected the craft movement. 'If you are going to call the chemical worker a craftsman,' he said, 'you will have to give him much more background training than he has to-day.'

One section of Dr. Goldblatt's talk which struck us as being applicable to the gas industry and almost every other industry referred to notices. Chemical workers, he said, have few susceptibilities, and since they often undertake potentially dangerous work, this is a source of constant anxiety. Many of the problems of safety could be attributed to this blunting of susceptibilities. Negative exhortations (Do not inhale dust, spill liquor, or whatever it might be) left no impress on his mind, since he had no knowledge of the urgency of the process or the severity of the consequences. Notices, therefore, should explain the result of doing a thing; they should be couched in positive and imperative terms; they should not so much make the man aware of danger as of safety provided he follows instructions; and they should have their wording, position and colour changed frequently.

We have said enough to indicate that this address was as unusual as it was stimulating. On Dr. Goldblatt's slides of cats' bladders and rats' livers we cannot enlarge, nor can we fully convey his humour. But perhaps our words have revealed something of his forthright approach to this vital subject. He believed that management should be completely honest with its employees and should recognise its responsibilities to them; and he believed that men's work should be such that they feel fulfilled by it. We applaud this sentiment and associate ourselves with it.

A SQUARE DEAL

THE story on other pages of this issue of the important part that gas is playing in the development of Crawley New Town—claimed to be the most advanced of all the new towns now under construction—is significant from two points of view. It is based on an impartial account of the all-round progress made by the Development Corporation, and it testifies to the fact that among competing fuel and power industries gas has been given a square deal. To provide for the 60,000 people who will ultimately live in the new town the Development Corporation had to ensure the expansion of public services which had previously been adequate for little more than a village population. Drainage, water, electricity, and gas all had to be reviewed in the light of the potential requirements of a town, one third of whose population would be engaged on the industrial estate, and modernity had to be delicately balanced against efficiency, economy, and personal preferences.

On the industrial estate a standard system of factory heating by gas has been adopted, and gas space and water heating appliances are also generally installed in the factory offices. On the domestic side tenants are afforded freedom of choice as between gas and electricity. They start, however, with the advantage that standard gas installations include plug-in panel type gas points with a minimum of six points per house, and each kitchen has a pre-fabricated gas and water terminal to facilitate the fixing of a sink water heater if required, thus dispensing with unsightly piping. We have had the privilege not only of inspecting some of the standard factories but of talking with the tenants of some of the houses, flats and bungalows. Most of them have come from congested parts of London; without exception they are very pleased with their new homes and proud of their new appliances. Not 100% of those appliances are gas, but the proportion is, on the whole, satisfactory.

WELCOME REVIVAL

APRIL 30 saw the opening of the British Industries Fair, an event so important to our national economic stability that its contribution requires no emphasis in this column. In any case, the vital part played by the gas industry and the many firms directly or indirectly associated with it is amply described elsewhere in this issue. What is particularly worthy of comment, however, is the revival this year of an industrial gas conference, held in conjunction with the B.I.F. and sponsored by the Gas Council. No one who attended this function, which was held at the Queen's Hotel, Birmingham, on Monday, is likely to deny that it was an unqualified success, an event in which skilful organisation and enthusiastic response were happily fused.

With Sir Edgar Sylvester, K.B.E., Chairman of the Gas Council, in the chair, and a heavy attendance which included eleven out of the twelve area board chairmen, leading industrial sales personnel from all parts of the country, and many members of the Society of British Gas Industries, together with other manufacturers, this was an event of some moment. In selecting as principal speaker at the conference Alderman J. C. Burman, J.P., the organisers made a fortunate choice, for not only is he an ex Lord Mayor of Birmingham, but a leading industrialist associated with several important firms. He could speak, therefore, as one who had taken an active part in the control of the Birmingham undertaking and, at the same time, as the representative of several large gas consumers.

Alderman Burman gave several examples of cases in which gas had improved efficiency and economy, and commented that the large proportion of gas sold for industrial purposes (26%) was originally achieved by the efforts of the highly trained staff seconded to give special attention to industry, a method which had proved well worth while to both supplier and consumer. In particular he instanced the Birmingham undertaking, which started organising the industrial side in 1911 and whose great period of progress in the 'twenties and 'thirties was due to the staff of the industrial laboratories and advisory heat treatment shops being able to persuade local firms, by practical demonstrations, that gas was a service that could aid them in heat treatment and space heating. In obtaining this additional business there were, he suggested, two inducements. One was —at that time—the unique technical service given at all times while the plant remained in use, and the other was the agreement, in return for a guaranteed consumption, of a special price concession, giving a distinct advantage over the tariff, rates. 'How wise was

its abolition we cannot yet tell,' said Alderman Burman, 'but . . . . when a leaner time arrives the gas industry will have to be very careful that its two great competitors, electricity and oil, do not usurp, by tempting offers, the business you now enjoy.'

He also dropped a word of warning when touching briefly on the question of space heating. Labour for solid fuel heating of blocks of offices or flats was not so expensive as for larger scale uses, as a caretaker was usually employed. Here the gas industry came up against cost. 'I do feel,' said Alderman Burman, 'that if you want this load, some special rebates, far more generous than those now given for quantity consumption, will have to be offered.

We have perhaps said sufficient to indicate that this was an address of particular interest. If space permitted we would like to describe at length some of the other features of this impressive day—Sir Edgar's reference to the retirement of Mr. A. W. Smith ('a man of real character and ability'), the remarks of Mr. F. A. Hooper, Chairman of the Council of the S.B.G.I., and the afternoon tour of the exhibition. But it must suffice that, in conclusion, we express our pleasure at the revival of the pre-war conferences, a little changed in detail but with the same underlying character. We need them in this nationalised industry, perhaps now more than ever.

PURCHASE TAX

In the *Journal* of April 18 (p. 159) we commented on the Budget and gave what we thought was a true interpretation of a most confusing and perplexing paragraph relating to purchase tax on gas appliances. We stated that the purchase tax on toasters, flexible tubing, and domestic gas lighting fittings and mantles had been increased to 66⅔%. Further investigation shows that the tax on these items is in fact 33⅓%. We hope that our first interpretation of singularly misleading wording in the Budget has caused neither perturbation nor annoyance.

SECRET SESSIONS

We suggest that it would be a much appreciated courtesy to the Press, if, when Gas Consultative Councils intend to go into private session, the fact was made known. As example, the Press were invited to a meeting of the North Thames Gas Consultative Council timed for 3.30 but in the event the representatives who attended were kept waiting uncomfortably for 35 minues for an official 'hand out' intimating an increase in the flat price of gas in the area of the North Thames Gas Board by 1½d. a therm, bringing the price to 17.6d. Several Pressmen-hours were wasted. No doubt when the Consultative Councils get still further into their stride arrangements with the Press will be brought more sharply into line with efficiency. Perhaps this will be regarded as a minor matter, but we think it is one to which the Councils might well give attention.

INDUSTRIALISTS PRAISE GAS BOARD

Praise for the efforts which the Northern Gas Board had made to improve supplies in the Tees-side area was expressed recently by the Tees-side Industrial Development Board after receiving from Mr. J. W. Pallister, Middlesbrough Divisional General Manager, a statement detailing 'the great deal of work' carried out by the Gas Board since vesting date. Listing achievements in the Division, Mr. Pallister stated that an ample pressure of gas was now ensured at all times in all parts of Middlesbrough for some years ahead.

SULPHUR FROM FLUE GASES

The report of the Department of Scientific and Industrial Research for 1949-50 refers to work being carried out at the Fuel Research Station on the removal of sulphur compounds from flue gases. Special consideration is being given to the possibility of recovering the sulphur in useful form. Work on a pilot plant installed to scrub 1,000 cu.ft. of flue gas per hour from a Lancashire boiler with concentrated gas liquor (15% crude ammonia) has reached a satisfactory conclusion in that conditions have been found under which the chemical control of the plant becomes practicable. A larger plant, to scrub 25,000 cu.ft. of flue data for continuous running on such a scale that the information will be valuable in the design of a full-scale gas per hour has therefore been designed in order to obtain unit. This plant is now being constructed.

PURELY SOCIAL

It is a happy tradition among professional bodies to organise once or twice a year functions which are purely social in character. One of the virtues of these occasions is that they afford an opportunity for the ladies to discover what keeps their menfolk out late at evening meetings or gives them excuse to disappear on a Saturday afternoon whenever something urgently needs doing in the garden. Anyhow, these social gatherings rarely fail to draw a markedly bigger attendance of members than do the regular business meetings. In the case of gas associations the reason is, of course, not far to seek. In an industry such as ours the subject under discussion at a technical meeting must inevitably be of interest to only a limited number of members, whether it be manufacture, distribution, or supply, whereas a social gathering obviously has a more catholic appeal. It is true that at almost any social gathering of members of our industry little groups of males tend to gravitate together (with guilty eyes on their deserted ladies) and learnedly discuss such light-hearted subjects as carbonising efficiencies and A.T.B. numbers—a vice doubtless common in principle to other industries as well. But apart from a few such renegades the majority appear to treat the event in the spirit in which it is conceived.

Hard-working journalists who have laboured through a session of highly technical deliberations look forward to these lighter and more intimate interludes with unmixed pleasure, and we for our part were happy and grateful to be numbered among upwards of 300 members of the London and Southern Junior Gas Association and their ladies at the annual reception and dance at Caxton Hall, Westminster, on April 20. This is, perhaps, the culmination of a president's year of office, when he has the opportunity of more personal contact with a greater number of members than at any other time. Mr. T. V. Garrud, in company with Mrs. Garrud, acted the part of host with the same dignity, distinction, and charm which have characterised his occupancy of the presidential chair during the past session. The Association was also honoured by the

presence of Mr. F. M. Birks (President of the Institution of Gas Engineers and Deputy Chairman of the North Thames Gas Board), Mr. J. H. Dyde (Senior Vice-President of the Institution and Deputy Chairman of the Eastern Gas Board), Dr. W. T. K. Braunholtz (Secretary of the Institution), and a number of other notable guests from the boards and undertakings from which the Association draws its membership.

Personal

Mr. W. Lindsay Burns, Vice-Chairman and Managing Director of Henry Balfour & Co., Ltd., gas and chemical engineers, is visiting Canada and U.S.A. to further the dollar export drive of the Balfour group of companies.

◇ ◇ ◇

Mr. D. N. Turner, Chairman of the Staveley Coal and Iron Company and the Staveley Iron and Chemical Company, has announced that he will retire from both companies as from July 1. He joined the Staveley Coal and Iron Company as Collieries General Manager in 1920.

◇ ◇ ◇

Sir Herbert Hutchinson, K.B.E., C.B., Secretary to the National Coal Board since November, 1947, will retire at the end of July. The Board has appointed **Mr. C. A. Roberts,** C.B.E., to succeed Sir Herbert as from the beginning of August. Mr. Roberts, who joined the Board in 1946, has been Under-Secretary since 1947.

◇ ◇ ◇

Mr. Alfred Robens, Parliamentary Secretary to the Ministry of Fuel and Power, has been appointed Minister of Labour, with a seat in the Cabinet, and has also become a Privy Councillor. Mr. Robens entered Parliament in 1945, and in 1946 he was appointed Parliamentary Private Secretary to the Ministry of Transport. In 1947 he was promoted to the post of Parliamentary Secretary to the Ministry of Fuel and Power, when Mr. Gaitskell was appointed Minister in succession to Mr. Shinwell, and he remained in office under Mr. Noel-Baker. Mr. Robens' successor is **Mr. Harold Neal** M.P. for Bolsover, formerly a check-weighman, who has been Secretary of the Parliamentary Miners' Group.

◇ ◇ ◇

Alderman Richard Turner, who when he retired on March 31, 1949, had for almost 50 years been with the Bedford District Gas Company, has accepted the invitation of the Town Council to continue as Mayor of Bedford for a second term. Mr. Turner was General Manager and Managing Director of the Company when he retired, and two months later he became Chairman of the Eastern Gas Consultative Council, with a seat on the Eastern Gas Board.

◇ ◇ ◇

Mr. D. Bentley has been appointed successor to **Mr. C. H. Bailey** as head of the illuminating glassware department of Falk, Stadelmann and Co., Ltd. He joined the Company in 1929. After 10 years at head office in various departments he was called up at the outbreak of war and served for six years, including two years in the Indian Army. He returned in December, 1945, as assistant manager in the glassware department.

◇ ◇ ◇

Mr. Burt Long has retired after 30 years with the Horley gas undertaking. He went to Horley in 1919 as Assistant Manager and Secretary of the former Horley District Gas Company under Mr. R. Seymour Tobey, and on the latter's retirement was appointed Secretary, and later General Manager. For many years prior to nationalisation he was also a Director of the Company, and since vesting date he has been local Manager under the South Eastern Gas Board. He has taken an active part in the municipal and social life of the district and will continue to live at Horley.

◇ ◇ ◇

Mr. S. Varley, Graduate I.E.E., has joined the Birmingham office of Lancashire Dynamo and Crypto. For three years he has held an appointment on the electrical engineers headquarters staff of Courtaulds, Ltd., Coventry, and was responsible for electrical distribution and equipment in various rayon manufacturing and processing mills. Mr. Varley received his training with A. Reyrolle & Co., and after five years as a designer, joined the control gear section of the B.T.H. Co., Rugby, and was with this Company for two years before joining Courtaulds, Ltd.

◇ ◇ ◇

Mr. G. Senior, Joint Managing Director of Richard Sutcliffe, Ltd., Horbury, has announced his retirement. To mark the occasion the presentation of a solid silver cigarette box, suitably inscribed, was made by Mr. Senior by Mr. G. Still on April 20, in the works canteen. Mr. Still is the longest serving member of the works staff. Mr. Senior joined the Company in 1912, and has seen the small workshop as it was at that time grow into the modern factory it is today. During that time he has won the esteem and affection of all those who have come into contact with him, either in his employ or in business generally.

Obituary

The death occurred on April 22 of **Mr. Ernest Parry,** for 16 years Commercial Manager of the Oldham Gas and Water Department, from which position he resigned in 1943 on medical grounds after a total of 48 years with the Department.

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The funeral of **Mr. H. J. Randall,** whose sudden death was announced last week, took place at Hove Cemetery on Tuesday, April 24. Many old friends and colleagues from the gas industry attended, including representatives of the Evening Star Lodge and Chapter. There were many beautiful floral tributes. Mr. Burt Long represented Mr. and Mrs. W. H. Bennett.

◇ ◇ ◇

W.K.H. writes: The passing of **Alderman A. C. Warwick,** J.P., is a great loss to the South Eastern Gas Board and to the South Eastern Gas Consultative Council. There are many who knew him who are better qualified than I to pay tribute to the value of the public service which he rendered for so long and so zealously, but during the relatively short time since the gas industry was nationalised, and Alderman Warwick became a member of the Board and Chairman of the South Eastern Gas Consultative Council, I learned to appreciate his great qualities, outstanding among which were his independent but kindly outlook and the mature judgment which he brought to bear on all matters under discussion.

Diary

May 3 and 4.—East Midlands Gas Board: Staff Conference, Skegness.

May 3 and 4.—Institution of Gas Engineers (Wales and Monmouthshire Section): Annual Meeting, Grand Hotel, Llandudno. 'Underground Gasification,' C. A. Masterman; 'Space Heating,' K. M. Ernest (Cardiff); 'Use of Butane,' A. D. Howells (Abergavenny); and 'Improvements in Gas-making Conditions on Small Works,' H. J. Stanley (Penmaenmawr).

May 4.—Institution of Gas Engineers (North of England Section): Annual Meeting, County Hotel, Newcastle-upon-Tyne, 11.30 a.m.

May 4.—London and Southern Junior Gas Association: 'Gas Cooling and Washing Plant,' J. B. McKean, 178, Edgware Road, W.2, 6.30 p.m.

May 10.—Midland Junior Gas Association: President's Day.

May 11.—Northern Junior Gas Association: Meeting at Newcastle; visit to Redheugh gasworks and address by J. R. Bradshaw.

May 12.—Scottish Junior Gas Association (Eastern District): Annual General Meeting at Edinburgh.

May 15.—Eastern Gas Consultative Council: Connaught Rooms, Great Queen Street, 2 p.m.

May 16.—Institution of Gas Engineers (South Western Section): 'Some Thoughts on the Treatment and Disposal of Gasworks Effluent,' Dr. A. Marsden. Torquay.

May 17.—Gas Council Commercial Managers' Committee, Leeds. 10.15 a.m.

May 18.—Institution of Chemical Engineers: 29th Annual Corporate Meeting, May Fair Hotel, London, 11 a.m.; Presidential Address, 12 noon; Annual Dinner, 7.30 p.m.

May 19.—Scottish Junior Gas Association (Western District): President's Day; Visit to Dumbarton gasworks.

May 19.—Western Junior Gas Association: Visit to the works of the Gloucester Aeroplane Co., Ltd., Gloucester.

May 22.—Institution of Gas Engineers (London and Southern Section): Spring General Meeting.

May 22.—Women's Gas Federation: 16th Annual General Meeting, Caxton Hall, Westminster.

May 26.—Eastern Junior Gas Association: Annual General Meeting, King's Lynn.

May 26.—Manchester District Junior Association of Gas Engineers: 'The Economics of Gas Manufacture,' M. Redman (North Western Gas Board); Visit to the works of W. C. Holmes and Co., Ltd., Huddersfield.

May 29-June 1.—Institution of Gas Engineers: Annual General Meeting, London.

May 31.—North Thames Gas Consultative Council, Westminster City Hall, Charing Cross Road, 2.30 p.m.

1951 'Journal' Directory

THE following changes have been notified during the past month. To keep the information in the 1951 edition of the *Gas Journal Calendar and Directory* up to date readers are invited to note these alterations (together with the appropriate adjustments relating thereto in the 'Personnel' section, pp. 137-152):

Page 21.—NORTH THAMES GAS CONSULTATIVE COUNCIL: Add Councillor Evan Evans, J.P. (Guildford Street), *Member.*

„ 22.—NORTHERN GAS CONSULTATIVE COUNCIL: Add Councillor F. N. Smith (Whitley Bay), *Member.*

„ 22 and 75.—SOUTH EASTERN: Delete Alderman A. C. Warwick, J.P., *Chairman,* Consultative Council and *Member,* South Eastern Gas Board (deceased).

„ 23.—WEST MIDLANDS GAS CONSULTATIVE COUNCIL: Add Alderman W. V. Collier (Warwick), Alderman W. Piggott (Hereford), Councillor E. T. Hobley (Rugby), Councillor C. Lowe (Wellington) and Mrs. K. Newbould (Redditch), Alderman G. E. Hodgkinson, O.B.E. (Coventry), *members.* Delete Councillor W. Kelley (resigned).

„ 27.—EAST MIDLANDS GAS BOARD: W. P. Smith, *Engineering Assistant.*

„ 28.—WATH, BOLTON, AND THURNSCOE: Delete S. H. Stokes, *M* (removed).

„ 32.—SCUNTHORPE (now Scunthorpe, Brigg, Winterton, Barton - upon - Humber, and Barrow - upon - Humber Group): S. H. Stokes, *Group M,* vice J. Simpson, *M,* Scunthorpe (retired).

„ 32.—GRIMSBY (now Grimsby, Cleethorpes, and Caistor Group): F. Harvey, *Group M.*

„ 58 and 65.—WIRRAL GROUP: T/N changed to Birkenhead 7481-7488 (8 lines).

PAGE 64.—SOUTH LANCASHIRE: S. Hopkinson, *Group Sales* and *Service Officer.*

„ 67.—LIVERPOOL GROUP: *Group Industrial Gas Sales Engineer:* W. L. Howe.

„ 77 and 78.—WEST SURREY DIVISION: T/N changed to VANdyke 6401.

„ 87.—SEATON GROUP: Delete E. S. Buckley, *Group Cont.* (deceased).

„ 111.—WEST MIDLANDS GAS BOARD: H. Moys, *Production Engineer.* K. W. Nevett, *Industrial Relations Officer* vice J. H. Wainwright. G. B. Sutton, *Insurance Officer.*

„ 112.—BILSTON: Delete F. Harvey, *E and M* (removed).

„ 119-122.—EDINBURGH AND SOUTH EAST: Now two divisions, Edinburgh Division and South East Division. Edinburgh comprises undertakings previously in Edinburgh group, with addition of Broxburn and three recently transferred N.C.B. undertakings, Newtongrange, Arniston, and Rosewell. South East comprises all other undertakings previously in Edinburgh and South East Division. D. J. Colvin, *Div. Controller,* South East; D. Beavis, *Div. Controller,* Edinburgh.

„ 121.—SOUTH EAST DIVISION: Sub-groups formed: (a) Galashiels, Selkirk, Melrose, Earlston, Lauder, Innerleithen, Peebles. W. C. Campbell (Galashiels), *Sub-Group M.* (b) Hawick, Jedburgh, Kelso, Coldstream, Duns, Ayton, Eyemouth. R. Cowie (Hawick), *Sub-Group M.*

„ 122-124.—CENTRAL DIVISION: Fife Group: Sub-group formed: Buckhaven and Leven, Kennoway and Largo, Anstruther, St. Andrews, Cupar, Auchtermuchty, Strathmiglo, Falkland, Kingskettle. H. A. Aitken (Leven), *Sub-Group M.* Perth Group: Sub-group formed: Alloa, Dollar, Stirling, Dunlane, Doune, Callander. W. M. Gledhill (Stirling), *Sub-Group M.* Newburgh transferred from Fife to Perth; Troon transferred from Greenock to Kilmarnock. Dunlop and Stewarton (Renfrewshire Group) will be transferred to Kilmarnock when linked with Kilmarnock gas supply.

„ 123.—ALLOA: Delete A. W. Brown, *Dist. M.*

„ 125-126.—NORTHERN DIVISION: A. W. Brown, *Dep. Div. Controller.* Sub-groups formed: (a) Inverness, Nairn, Dingwall, Tain, Stornoway, Thurso, Wick, Golspie. J. Ford (Inverness), *Sub-Group M.*: R. Stewart, *District M.*, Thurso, responsible for Wick and Golspie. (b) Stonehaven, Laurencekirk, Inverbervie. J. Scobie (Stonehaven), *Sub-Group M.* (c) Fraserburgh, Peterhead, Banff, Turriff. T. A. Ross (Fraserburgh), *Sub-Group M.* (d) Elgin, Forres, Keith, Huntly, Buckie, Cullen. F. B. Kerr (Elgin), *Sub-Group M.* (e) Kirkwall, Stromness, Lerwick. D. Lord (Kirkwall), *Sub-Group M.*

„ 126.—GLASGOW DIVISION: Sub-group formed: Dumbarton and Helensburgh, Cove, Vale of Leven, Inveraray, Oban. A. McFadyen (Dumbarton), *Sub-Group M.*

„ 130.—AYR: C. E. N. Freshney (*Dist. M.* Newton-on-Ayr) becomes *Joint Dist. M.* of Ayr and Newton-on-Ayr; delete C. B. S. Mitchell, *Dist M.* (removed).

„ 130.—KILMARNOCK GROUP: C. B. S. Mitchell, *Dep. Group M.* Sub-groups formed: (a) New Cumnock, Kirkconnel, Sanquhar, Cumnock, Auchinleck, Catrine, Muirkirk. G. Hannah (New Cumnock), *Sub-Group M.* (b) Troon, Maybole, Girvan, Stranraer, Wigtown, Newton Stewart. C. B. S. Mitchell, *Deputy Group M.* (c) Dumfries, Dalbeattie, Castle Douglas, Kirkcudbright, Annan, Lockerbie, Langholm, Moffat. S. C. Johnstone (Dumfries), *Sub-Group M.*

„ 157.—NEWRY: Delete J. V. Mearns, *M.* (deceased).

„ A8 and A253.—HARRIS ENGINEERING CO.: T/N RODney 3835/6/7.

Salary Increases from April 1 for about 150,000 local government officers in England and Wales are announced as the result of an agreement reached at a meeting of the National Joint Council for the Local Government Service. The increases range from £12 a year for girls of 16 to £65 a year for men of 28. The agreement results from a claim submitted by Nalgo for a 20% rise, and it applies to all local authorities except the London County Council, where special weighting increase is to be received in addition.

Illuminating Engineering Society.—It has been the practice of the Illuminating Engineering Society for several years to invite a distinguished visitor from overseas to address the Society on lighting matters or allied subjects following the annual general meeting. This being Festival year the Society has decided to depart from this tradition and the address is to be given by one of the leading physicists of this country, Professor E. N. da C. Andrade. The subject will be 'Luminescence,' and the lecture will be given at the Royal Institution, Albemarle Street, at 6 p.m. on May 8.

DEMONSTRATIONS FOR THE DEAF AND DUMB

North Thames Gas demonstrators gave some cookery sessions at St. Olave's Hall, Woodberry Down, Middlesex, recently. The most unusual of these was before an audience of deaf and dumb people who watched their 'spokeswoman' interpreting the words of the demonstrator. Questions were asked and answered through the same medium. Film shows and demonstrations were given on three days to tenants (and others) of the Woodberry Down Estate.

Most Aid with Least Interference

Sir Hartley Shawcross, K.C., in his first public speech as President of the Board of Trade said at the 88th annual dinner of the Newspaper Press Fund at Grosvenor House, Park Lane, on Wednesday last that he knew the great difficulties which existed in regard to newsprint and would view them not unsympathetically in any duties he had to discharge in regard to them. So far as the functions of his office in general were concerned he would endeavour to give the maximum of assistance with a minimum of interference to the industry of the country in serving the interests of the country in these most difficult and testing times.

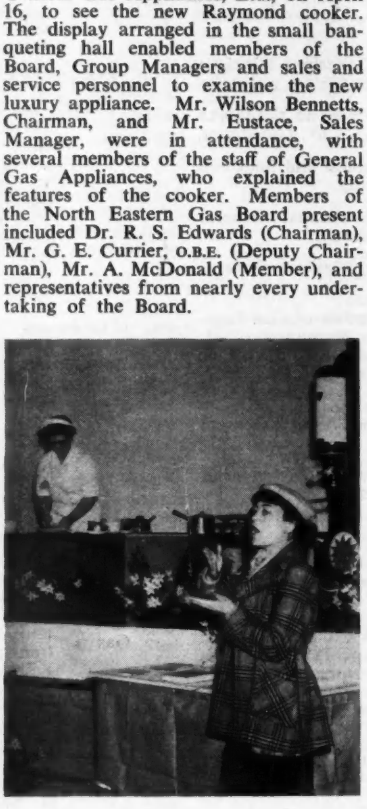
Sir Hartley was proposing 'Journalism,' to which Mr. Peter Fleming replied.

Major-General Lord Burnham, Chairman, proposed 'The Newspaper Press Fund,' and Colonel the Hon. J. J. Astor, President of the Fund, replied.

Mr. Percy Rudd, Chairman of the Council, announced that it was estimated that the appeal this year would realise £17,500.

News in Brief

The Raymond Cooker.—Members of the North Eastern Gas Board were invited to the Queens Hotel, Leeds, by General Gas Appliances, Ltd., on April 16, to see the new Raymond cooker. The display arranged in the small banqueting hall enabled members of the Board, Group Managers and sales and service personnel to examine the new luxury appliance. Mr. Wilson Bennetts, Chairman, and Mr. Eustace, Sales Manager, were in attendance, with several members of the staff of General Gas Appliances, who explained the features of the cooker. Members of the North Eastern Gas Board present included Dr. R. S. Edwards (Chairman), Mr. G. E. Currier, O.B.E. (Deputy Chairman), Mr. A. McDonald (Member), and representatives from nearly every undertaking of the Board.



The East Midlands Gas Board has issued a writ against the Scunthorpe Town Council claiming some £22,000, said to represent the profits of the local gas undertaking for the two years before nationalisation. The Council is defending the claim, and has retained Sir Walter Monckton, K.C.

Twenty-Three Employees of the Walsall division of the West Midland Gas Board have been presented with awards. The list of longest serving employees was headed by Mr. Joseph W. Cheadle, a meter inspector of Walsall, who has 47 years to his credit. He was presented with a wrist watch and a gas cooker.

Design for Living.—Over 14,000 people have visited the Gas in the Design for Living exhibition at the Building Centre since October, 1949, when the newly-designed section was opened by Sir Edgar Sylvester, Chairman of the Gas Council. During March nearly 1,000 enquiries and visitors were recorded. These included architects, builders, allied professions and trades, as well as non-professional visitors. Organised visits included parties of students from Kings College, Battersea and Northern Polytechnics, Berridge House and Gas Boards' representatives.

The United Sulphuric Acid Corporation, Ltd., has been registered as a private company for the purpose of erecting and operating in Britain a plant for producing sulphuric acid from anhydrite. The project involves British Enka, Ltd., the Clayton Aniline Co., Ltd., Courtaulds, Ltd., Fisons, Ltd., Imperial Chemical Industries, Ltd., and others who, it is proposed, will subscribe for shares in the new company in the same ratio as they will purchase sulphuric acid from the company. Plant will be designed to produce 150,000 tons of sulphuric acid a year and discussions are proceeding in regard to a site for the plant, and other matters.

Gas Board Workman Awarded £1,049 Damages

ON behalf of a plaintiff who was awarded a total of £1,049 damages at Birmingham Assizes on April 18 against the West Midlands Gas Board, Mr. G. H. Beresford asked: 'Ought he to have waited for assistance or was he right in going on with this urgent work for his employers?'

The plaintiff, Harold Rickward, of Harrold Street, Toll End, Tipton, a maintenance fitter employed by the Board, claimed damages for breach of statutory duties and negligence, following injuries received while working at the Mond Gas Works, Tipton, on May 4, 1949.

Mr. Beresford said that Rickward was erecting a water pipe which was part of the gas producer plant. The pipe had to be suspended at a height of about 9 ft. from the ground by hooks which hung from girders. The ladder on which he was working slipped and he fell to the ground.

Although he had no assistance he carried on with his work because it was urgent. A plea of contributory negligence against him amounted to the fact that he did carry on with the work, said counsel.

Rickward was in hospital for 10 weeks and afterwards at a rehabilitation centre before starting work on September 28, 1949.

Giving judgment, Mr. Justice Humphreys said it was not every momentary mistake that a man made in taking some slight risk that ought to be held as contributory negligence.

'I find that he was injured as a result of the failure on the part of his employers to provide a safe means of work,' said the Judge. 'He was not guilty of contributory negligence in deciding to do what seemed to him a small matter without taking excessive precaution.'

Special damages had been agreed at £199, and the Judge awarded the plaintiff personal damages of £850.

Northern Burdens Equalised

PROTESTS BY LOCAL AUTHORITIES

CRITICISM of the action of certain North East local authorities in attempting to obtain concessions for gas street lighting and other charges at the expense of the general body of consumers was expressed by Alderman J. Hoy, Chairman, at a meeting of the the Northern Gas Consultative Council on April 17. He presented reports on a meeting of a sub-committee with representatives of Hartlepool Borough Council and an interview between himself, the Chairman of the Board (Mr. E. Crowther), and Mr. D. T. Jones, M.P., for the Hartlepools.

Continuing, Alderman Hoy said: 'My attention has been called to the fact that since we received these deputations, West Hartlepool Town Council has called called a conference of local authorities with the object of trying to press for concessions not only in the prices we have discussed but also for those in respect of street lighting. I understand that they are seeking to make direct contact with the Board on this matter and that they have eleced a deputation for that purpose.' On previous occasions when the Board had been asked by groups of local authorities to receive deputations it had refused because it was considered that it would be wrong for the Board to be placed in the position of receiving deputations from organisations seeking concessions, perhaps to the disadvantage of the general body of consumers.

The Board felt—and rightly so—that the Consultative Council was the correct channel for receiving the complaints of all consumers and it was jealous of any attempt which was made to usurp the functions of the Council.

'The criticisms and grumbles are only what we expected when these new tariffs were introduced. I cannot re-emphasise too strongly that the purpose of this Council is to make sure that the burden thrust upon industry and other forms of consumers is evenly and equitably distributed. We can ill afford to allow any body of consumers—no matter how powerful they may be—to have an unfair advantage over the rest of the consumers'.

More than 57% of the gas consumed was used by ordinary and prepayment domestic consumers. The amount consumed for public lighting purposes was 2.65%.

A letter was received from Tynemouth County Borough Council protesting 'in the strongest terms' against the present-day tendencies of public utility undertakings to impose increased charges for services without preliminary negotiations with local authorities. While the Council appreciated that it was necessary from time to time to review charges, there was a growing tendency to adopt an independent and uncompromising policy without preliminary negotiations or agreement with local authorities and other bodies concerned.

In reply, Alderman Hoy said that in the area of the Northern Gas Board there were 105 borough, urban and rural councils, not taking into account parish councils. They would face a formidable task if they attempted to open separate negotiations with all the authorities when changes were made in gas charges.

The Chairman reported on discussions with regard to the protest from the Middlesbrough Consumer Committee against the fixing charge introduced by the Board.

Middlesbrough considered that £2 for fixing an appliance was too high when it was a simple process of removing some piece of old gas apparatus and installing a new one. While pointing out that the charge was a uniform one and embraced transport costs, fixing, and adjustment costs and subsequent maintenance and was based on the experience of the Board as a result of many thousands of transactions, Alderman Hoy said that Mr. Crowther appeared to be sympathetic to this aspect of the complaint and promised to investigate the matter.

Crewe Mainlaying Feat

In our issue of April 11, p. 92, we gave an account of a remarkable mainlaying operation, carried out at Crewe Junction for the North Western Gas Board. More than 200 yds. of 24 in. diameter gas main were laid under 40 closely packed sets of railways lines across the width of Britain's biggest railway junction without once disturbing train timings.

Originally expected to take 12 weeks the operation was completed three weeks under scheduled time. The work was executed by the United Kingdom Construction and Engineering Co., Ltd., who enjoyed the full co-operation of both the technical staff of the North Western Gas Board and the British Railways Engineering Department at Crewe.

U.S.A. Scholarships

The Ministry of Education announces that with the aim of contributing to industrial productivity in this country, 35 post-graduate scholarships are to be awarded in 1951 for the study of Technology and Management at selected universities, technological institutes and industrial undertakings in the U.S.A. The cost will be met by the American Economic Co-operation Administration.

The awards, which will normally be tenable for a period of one year, will be open to students who hold good honours degrees in either Pure Science or Technology, who have had at least two years' industrial experience, and who are now working in industry or research associations or are teaching in universities or technical colleges.

The scholarships will provide for tuition fees, books, and travelling expenses in the U.S.A., and suitable maintenance allowances. The cost of the return passage to the U.S.A. will be met from public funds. Successful candidates will be expected to leave for the U.S.A. early in September.

Full details may be obtained from the Ministry of Education, Curzon Street House, Curzon Street, London, W.1. Applications must be in by April 30.

WEST MIDLANDS DISPLAY AT BIRMINGHAM

Although the first fortnight of the National Trades & Television Exhibition came within the fuel economy period, the Birmingham District of the West Midlands Gas Board gave a comprehensive display of domestic gas appliances as the photograph shows. The stand was designed as four arcs of a circle with avenues between and a centre office block displaying hot water appliances. A circular fascia at both ends carried the Board's title. Knowing the attraction value of any moving object, the Gas Board's Publicity Section, who designed the stand, incorporated a revolving symbol on the roof and a Cannon moving cooker below. On an adjacent stand the Coke Section showed domestic grates and other coke burning appliances.

POTTERTON GAS BOILERS FOR BOTTLE WASHING

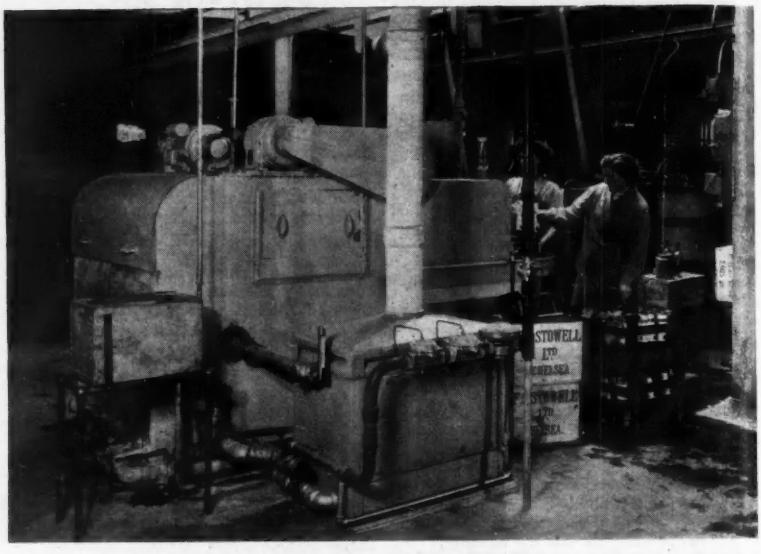
THE Delegates of the National Association of Soft Drinks Manufacturers' Conference at Scarborough last month were addressed during one of the technical sessions on the subject of gas water heating for bottle washing by Mr. G. E. Cox, of Thomas De La Rue & Co., Ltd. (Potterton Gas Division).

The main theme of his talk was cleanliness and efficiency of plant. He said that 3,527,000,000 bottles were filled by the soft drinks industry every year, and therefore, each one of these had to be washed. He then elaborated nine points which were the criteria for good heating practice for the soft drinks factory, and turned to an examination of present practice in the industry which were:—

(1) Use of solid fuel steam boiler for for all purposes—*i.e.*, one or more bottle washing machines, central heating, hot water supply, and perhaps pasteurisation. This, he said, might have some advantages, but it was beset with the inherent difficulties of using a high-pressure medium like steam with necessary worries over safety valves, steam traps, leaks in the lines, and the difficulties of boiler insurance. On top of all this there was the ever-present dirt and dust from the boiler chamber.

(2) The solid fuel boiler for direct circulation brought most of the difficulties outlined above, with the addition that there was no control at all of the heating and that the boiler itself was often situated in a deep, noisome pit adjacent to the machine.

An analogy was then drawn between the centralised system of steam and an elaborate system of belting, illustrating that the engineering industry was now using separate electric motors, each machine thus using power economically and giving more flexibility as a whole. The bottling industry, he said, was now wisely following suit, and that the bottle washing machine should be completely independent with its own motors, pumps, and gas boiler.



A British Miller Hydro 100 doz. per hour machine fitted with a D series 5-section 'Rex' boiler. Note filling tank with ball valve to maintain correct level of detergent, Stowells, Ltd., Chelsea.

Turning to the use of gas as a fuel, he made the following four points:—

(1) Gas is easily piped to the point at which it is required to be used.

(2) It is very easily and simply controlled, either with pressure operated valves or electric controls or a combination of both.

(3) Gas is always on tap.

(4) With gas no storage space was required.

He said that gas was an expensive fuel, and that it should, therefore, be burned to the best possible advantage, and that gas boilers which could be used for the purposes of heating the detergent for bottle washing machines operated at approximately 80% efficiency.

The application of the gas-fired boiler to the bottle washing machine was, he said, quite simple, merely two short flow and return pipes connecting the two. There was, however, one difficulty, which was that all bottle washing machines were made with the tanks situated in the base of the plant and, necessarily, the flow pipe of the boiler, which had to have a slight raise between it and the tank had to be below the normal fluid level of the machine, otherwise there could be no gravity circulation.

A projector and screen were then used to show several installations illustrating the technical points of each and showing how, by co-operation of manufacturers such as Miller Hydro and Dawson Bros., various technical difficulties had been successfully overcome.

in the next issue of GAS SERVICE . . .

will be found . . .

THE FESTIVAL HALL

The month of May, 1951, will have as its principal claim to memory the fact that it marked the opening of the Festival of Britain. In keeping, therefore, with a timely Festival cover, the May issue of *Gas Service* will contain an illustrated feature on the Royal Festival Concert Hall one of the finest gas installations of its type in the world, and a description of its all-gas kitchen. Catering facilities elsewhere on the South Bank will also be dealt with.

REPORT FROM AMERICA

America is traditionally the home of salesmanship. To what extent these high pressure methods deserve their reputations is problematical, but at all events news of salesmanship from across the Atlantic is of the greatest interest to us in this country, irrespective of whether or not we regard it as an example to be followed. In the May issue, various aspects of American appliance design and selling technique will be reported, and appraised.

* * *

OTHER FEATURES

Other items will include comment upon the future of the electricity industry, the new town of Crawley, the Budget, trade exhibitions, current news and pictures, technical features, and reports of Salesmen's Circle meetings.

This number will reach subscribers in a day or two.

Published from the Offices of the *Gas Journal*, price 9d.

Gas Comes to Wallyford

WITH the grouping of the gas undertakings within a 10 mile radius of Edinburgh as a unit of administration under the Scottish Gas Board, a survey of the condition of the gas supply in the group was carried out. It was found that some housing areas outside the City boundaries were either inadequately supplied or without gas altogether. Consequently, a scheme of development was approved by the Board, and the provision of a gas supply to Wallyford is a typical measure.

Wallyford, a mining village with a population of roughly 500 people, increasing in the very near future to almost twice that figure by reason of local development in the mining industry, has had a gas supply brought from Musselburgh through a medium high pressure main to Wallyford Toll, a distance of 2,700 yd. There the bulk supply passes through governors and goes forward to the village for distribution to the houses. The main will be extended to Prestonpans and Tranent.

Lord Balfour (Chairman of the N.C.B. Scottish Division) inaugurated the supply on March 14, and with the co-operation of the Miners' Welfare Committee a small exhibition was staged in the local Miners' Welfare Institute for a period of one week. Lord Balfour was supported by Sir Andrew Clow (Chairman of the Scottish Gas Board), Mr. D. D. Melvin, Mr. J. Campbell (Members), Mr. David Beavis (Edinburgh Group Manager), Mr. R. H. Bone (Commercial and Sales Officer), Mr. S. A. Findlay and Mr. Ross (General Manager and Secretary respectively of the Scottish Special Housing Association), and officials of the local Miners' Welfare Institute.

The British Broadcasting Corporation were sufficiently interested in the project to send a news reporter, Mr. Sandy Munro, to record the inauguration proceedings. Sir Andrew Clow introduced Lord Balfour, who expressed his pleasure in the fact that the Gas Board had been able to extend its facilities to the people of Wallyford. He said that housing was perhaps the greatest single factor in the rehabilitation of the coal mining industry, and consequently each house should have every modern convenience of which, in his opinion, gas seemed to be indispensable.

These speeches were broadcast in the Scottish News on March 14, and the B.B.C. were so impressed with the project that they felt that it was an item abou which they should have some special mention in the feature programme 'Scotland in the News' on March 16. Consequently, they invited Mr. David Beavis to give a broadcast talk on the project. Mr. Beavis spoke of the plans which were in hand for the improvement and development of gas supplies within his group, and pointed out that the Wallford project demonstrated quite clearly that these activities were rapidly developing.

A Wallyford housewife also spoke on the same programme on the subject of the gas supply, and she made it quite clear that, speaking as one who had previously been without the amenities of gas, she welcomed the scheme and expressed her appreciation of the Gas Board's efforts in making the supply available.

Dearer Gas in Belfast

The price of gas in Belfast is to be increased by 4½d. per 1,000 cu.ft. with a comparable increase for prepayment consumers. Mr. J. L. Hyslop (Engineer and Manager) said that the increase was necessary because of the recent rises in the cost of coal, oil and wages.

He added to his statement that unfortunately, there was reason to believe that still further increases of coal costs would become effective in the near future. The gas price increase would be 5d. gross, less 10% for payment within a month.

The report Mr. Hyslop presented to the Gas Committee intimated the following increases—coal £101,000; gas oil, £9,500; wages, £39,000—total, £149,500. Deducting £14,500 for the sale of coke, a net increase of £135,000 per annum had to be provided for. The yield from these increases, said Mr. Hyslop, would only amount to £103,000, leaving an increase of £32,000 unprovided for, but he hoped that improved economy would meet that.

When the full coal costs were operative, after August next, Belfast supplies would cost 230% more than before the war.

COMPANY NEWS

AUSTRALIAN GAS LIGHT

The Directors report that the net profit for the past year amounted to £297,657, making with the amount brought forward from profit and loss appropriation account £332,744. After payment of the interim dividend of 2% in respect of half-year ended June 30, 1950, the balance at credit of profit and loss appropriation account amounted to £235,544. The Directors recommend the payment for the half-year ended December 31, 1950, of a dividend of 4% on the 'A' and 'B' shares, which will absorb £194,400, leaving £41,144 to be carried forward.

ALLIANCE AND DUBLIN

The full accounts for 1950 show a surplus on the revenue account of £124,644 11s. 5d. (£124,458). After providing for interest on debenture stock interest on temporary loans, and income tax, there remains the sum of £62,439 5s. 6d., to which must be added £5,322 2s. 7d. for interest on investments and the sum of £17,178 14s. 6d. being the balance brought from last account, making a total of £84,940 2s. 7d. (£88,097). From this total is to be deducted the interim dividend declared and paid in respect of the half-year ended June 30, 1950, at the rate of 3% actual (same) less income tax, which absorbed the sum of £35,790 12s. 10d. net leaving a balance of £49,149 9s. 9d. available for allocation. The directors recommend the payment of a final dividend for the year on the consolidated ordinary stock of the company at the rate of 3% actual (same) less income tax, which will absorb the sum of £35,790 12s. 10d. net leaving £13,358 16s. 11d. to be carried to next account.

THE GAS PAVILION STAFF

Four gas boards were represented by the attendants on the Gas Pavilion at the Ideal Home Exhibition at Olympia this year—North Thames, South Eastern, Eastern and Southern. Here is one group under the managership of Mr. C. E. Oxenham.

CRAWLEY NEW TOWN

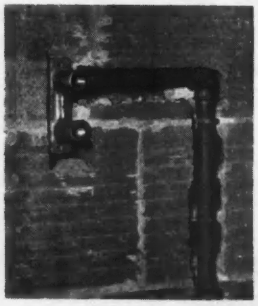
Gas Services in Home and Industry

Crawley New Town, Sussex, is growing up. Development is more advanced than in any other of the new towns; several factories are in production and houses and bungalows are occupied. Public utilities are being developed to meet the needs of 60,000 people who will eventually live in the new town, of whom some 13,000, or two-thirds of the employable population, will work on the industrial estate.

INDUSTRIES and their personnel are being transferred to Crawley New Town from the more densely populated parts of London. Nine residential neighbourhoods surround the town centre, with an area on the northern outskirts for industry. Each neighbourhood will ultimately accommodate 5,000 people.

Main shops and commercial buildings will be in the town centre together with public, governmental, municipal, educational, and recreational buildings. The present High Street will remain and as many as possible of the existing buildings will be preserved, including several of historical or architectural interest.

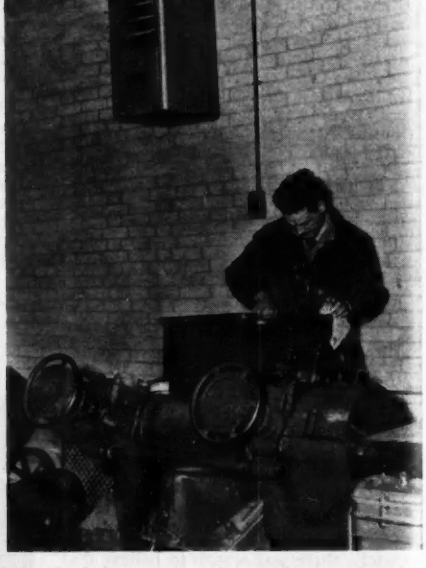
The designated area falls within the Counties of West Sussex, East Sussex, and Surrey, the Rural District Councils of Horsham, Cuckfield, Dorking, and Horley, and five parishes. Horsham and Cuckfield Rural District Councils have housing schemes in Crawley which they are continuing to develop in harmony with the schemes of the Development Corporation. It is hoped that before long a single local authority will be set up for the designated area.



The prefabricated gas and water terminal installed during erection enables tenants to have a gas sink water heater installed to their own choice at low cost and without disturbance of the structure or any unsightly plumbing.

Adequate public services were the Development Corporation's first consideration. The earliest step was to lay trunk sewers and build a sewage treatment works, the first section of which should be ready for use by the middle of 1951. Development of the treatment works is planned in stages in step with the town's needs.

Water is at present supplied by four separate undertakings, none of which is large enough to meet the needs of the new town. The Development Corporation has, therefore, joined with four water undertakings in East Sussex in establishing the Weir Wood Joint Water Board, which is proceeding with the construction of an impounding reservoir of 1,200 mill. gal. capacity, designed to supply water to Crawley and an area of 110 sq. miles in East Sussex. The new town is in the area of the South Eastern Electricity Board.



Standard factory for the production of printing inks, showing the Harris heating unit and wall thermostat. These are installed in all the factories except where special circumstances necessitate other forms of gas heating.

Gas was for many years supplied to Crawley and Three Bridges by the Horley District Gas Company, which was vested in the South Eastern Gas Board. Towards the end of 1947 the former Croydon Gas Company, the East Surrey Gas Company, and the Horley District Gas Company combined with the Ministry of Fuel and Power in preparing a detailed scheme for the supply of gas to the new town. This scheme was adopted in principle by the South Eastern Gas Board, which is installing compressing plant at Waddon to meet the requirements of the new town and the East Surrey and Horley gas undertakings, but in the interim the gas will be supplied through the existing boosting plant at Waddon. A 24 in. main is being laid between Waddon works and Redhill, where it will be connected to an 18 in. main already laid between Redhill and Horley works. The final section of the main required to supply the area between Horley works and the new town will be started shortly. It is anticipated that it will be completed by next winter, by which time it will be possible to transmit gas direct from Waddon to the new town. It will also be necessary at some future date as the demand for gas increases to install a boosting plant at Redhill.

Two gasholders, each of 1½ mill. cu.ft. capacity, will be built near the industrial site, with ancillary boosting plant to deliver the gas into a ring main on the line of which governors will be installed to afford local supplies. When the scheme is finished, about 130 miles of main will have been laid which, together with the cost of the gasholders and boosting plant at Waddon and Redhill, will amount to approximately £1 mill.

Housing Development

House heating and the equipment to be installed have received careful attention. Grates for burning smokeless and other fuels and convection heating grates are included in the different types of dwelling.

In every house the choice of gas and electricity is available to the tenant. The gas installations include plug-in panel type gas points, with a minimum of six points in each house, and a noteworthy feature in each kitchen is a pre-fabricated gas and water point which will facilitate the fixing of a sink water heater if required and will dispense with unsightly piping.

Most houses have solid-fuel water heating installations and these are

One of the 'standard' factories, heated by gas, on the industrial estate opened last year by Princess Elizabeth. Gas appliances are also installed for water heating and office heating as part of the landlord's fixtures.

veloped in two ways. The first is by the leasing of sites for a term of 99 years at ground rents based on the full commercial building value of the sites on which the manufacturer can build his own factory according to his own plans. The other way is by the leasing to manufacturers who do not wish to build their own factories, of 'Standard' factories constructed to the Development Corporations' designs, which are let on 21 years' repairing lease at a rack rent which includes standard office, lavatory accommodation, yard space, and general lighting and heating installations.

Five firms have arranged to lease sites, and 13 have taken 17 units of standard factories amounting in total to about 90,000 sq. ft. Six of the standard factories in Group I are actually at work producing liquid flow meters, aeronautical test instruments, cleaning compounds, electric lifts, hoists and pulleys, metallic powders, and printing inks and varnishes.

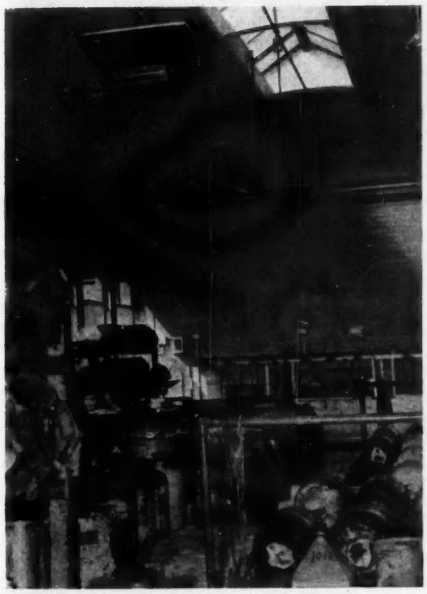
Construction of the standard factories is based on the use of standardised barrel vault roofing formed by reinforced shell concrete insulated with fibre board supported on concrete uprights so as to give an uninterrupted floor area of 4,800 sq. ft. Daylighting is effected with top through glazing giving 20% efficiency on the working plane, and natural ventilation is obtained by opening roof lights and the introduction of opening casements in the external walls.

The external walls of the factories are constructed of flint and cement bricks and the floors are generally in cement rendered and hardened. Office and lavatory facilities are planned clear of the factory space as separate units.

A standard system of factory heating has been adopted, employing the Harris overhead gas heating unit, which offers the advantages of occupying no floor space, even distribution of heat, quick rise in temperature, and automatic temperature control by means of room thermostats. In addition it is possible to use the electric fans incorporated in the heaters to give a ventilating effect during the hot summer months.

In certain of the standard factories, where manufacturing processes incorporate inflammable substances, the standard heating equipment has been replaced by plenum plants and flameproof overhead radiant heating systems. In one other instance unit heaters operating with low pressure steam generated in a gas fired boiler has been used to meet particular requirements.

In factory offices, Cannon and Bratt Colbran convector heaters and Cowper Penfold 'Sapphire' heaters have been installed, and for all the factory toilets the Development Corporation has employed as a standard appliance the Ewart M.75 multipoint gas water heater.

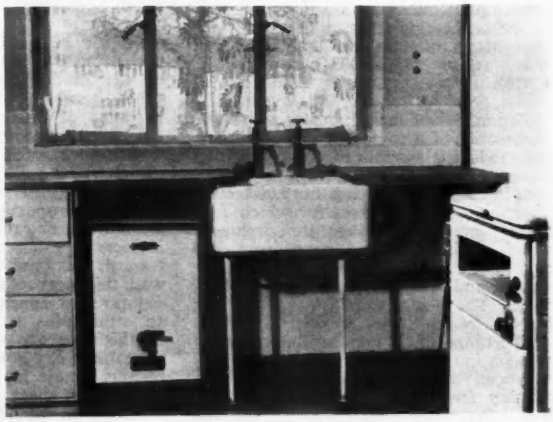


Interior of a 'standard' factory producing printing inks, showing the Bratt Colbran 'Garage' pattern overhead gas heating units. These units were chosen specially for this factory because of the inflammable materials used in the process.

either coke-fired domestic boilers with gas poker ignition, or back boiler type gas-ignited living room grates. A percentage of the dwellings are being provided with gas water heaters, and arrangements are made for panel type gas fires in bedrooms where flues are constructed.

Industrial Estate

The Industrial Estate, opened by Princess Elizabeth last year, is being de-



Typical kitchen in one of the three-bedroom houses at West Green, equipped with gas wash boiler and cooker. To the right of the window is the pre-fabricated gas and water terminal.

BRITISH INDUSTRIES FAIR

THAT the high standard set by last year's Gas Council stand at the British Industries Fair has been maintained is apparent to all visitors to Castle Bromwich. Set at the centre of the Gas Section, which also includes a stand devoted to the Gas Council's Coke Department, the gas pavilion makes an almost entirely industrial approach to the problem of representing an industry of 120,000 industrial consumers.

1951 EXHIBITS REVIEWED

Centre piece of the stand is a full-size bogie furnace by Dowson and Mason Gas Plant Co., Ltd. This is of the type used for annealing and stress relieving, and is similar to the one which the firm is erecting for the Motherwell Bridge and Engineering Co., Ltd., and which is believed to be the largest town gas fired furnace ever built in this country. The automatically controlled slot forge furnace which forms another exhibit is by Thermic Equipment and Engineering Co., Ltd., and has been so designed that a pre-determined temperature can be maintained throughout the operation, together with a suitable furnace atmosphere to prevent scaling. The previous method was to load the furnace and begin forging when the temperature was judged nearly correct, but it was often found that the first 'moods' were not hot enough for an easy flow of metal in the dies, while the last out of the furnace were too hot, and might be burned. These difficulties are obviated by the use of the automatically controlled furnace, which has a maximum consumption of 475 cu.ft. of gas an hour for initial heating from cold, after which the consumption is 375 cu.ft. an hour for working at 1,000°C. or 416 at 1,100°C.

The model of the air heater on view is necessarily of a comparatively small size, but industrial applications of similar design can be made as large as a type with a gas consumption of 7,000 cu.ft. an hour. The processes for which such heaters are used include the drying of wood chips, sensitised paper, ore and coke, the curing of linings for food containers and the manufacture of animal food. The heater shown was developed by the North Thames Gas Board.

The range of burners available for the various industrial processes is shown by a special display of burner equipment, ranging from natural draught burners, both pre- and post-aerated, through medium to high pressure burners. The exhibit is arranged so that each separate burner lights in turn, and has a mirror fitted which enables the observer to see the combustion conditions within the burner tunnels.

A model is shown of the radiant tube-heated roller hearth conveyor furnace (Incandescent Heat Co., Ltd.) which is used for continuous heating processes. The furnace is heated by the combustion of gas inside heat-resisting tubes. The tubes generate and radiate heat, the products of combustion being kept entirely out of contact with the load in the furnace. The tubes are fired from the charging and of the furnace and are provided with special controls and air-gas ratio proportioning. Each tube has an individual calibrating valve so that, if necessary, more heat may be delivered towards the base of the shell where the wall thickness may be greater; the temperature for annealing can be controlled to within plus or minus 5°C. Furnaces of this type are suitable for the bright annealing of both ferrous and non-ferrous metals in the form of pressings, strips, wire, sheet, and tubes at temperatures up to 1,000°C.

A demonstration of the decoration and firing of pottery is an attractive feature of the stand. Two kilns are on view, one kiln being fired each day, while the other is being unloaded or loaded. The work of decorating the pottery and the finished product are also on view on the stand. The demonstration has been arranged in conjunction with the South Eastern Gas Board, the appliances used being muffle kilns capable of temperatures up to 1,350°C.

One of the latest types of gas fired ranges is the 'Radi-Heat' range of Preston and Thomas, Ltd. A great improvement has been obtained in speed of working, heat retention, and general efficiency by providing positive ventilation of the range, in association with a re-designed burner to suit conditions of induced draught, and a sealed combustion chamber. In addition, extra heat is obtained through the sides of the pan by circulating the waste gases from the combustion chamber.

A small portable furnace (Thermic Equipment and Engineering Co., Ltd.) demonstrates the use of gas firing for the rapid heating of steel sections prior to bending. By the use of this furnace it was found possible to raise a 15-in. length to bending temperature in about six minutes, in comparison with 45 minutes in the forge previously used. In addition, it was found that the new furnace almost entirely eliminated the scaling and burning experienced with the former method of working.

Other exhibits include a die casting machine (E.M.G. Co., Ltd.) an internally heated roller which has been designed for use in laundries, a controlled flame vertical steam boiler (Controlled Flame Boilers, Ltd., Parsons Green, S.W.6), and gas-fired air heater (Wellington Tube Works, Ltd.). A special section of the stand is devoted to large scale catering equipment.

The Gas Council Coke Department's stand includes central heating boilers, and gravity feed stokers, steam raising boilers and a furnace for industrial drying. The central heating boilers are of new design, specially adapted for burning gas coke, and operating at efficiencies of 75% or better.

The following review of exhibits includes most of the firms exhibiting in the Gas Section and many more besides.

Stand Outdoor, 1207 and 1106: **A.C.E. Machinery, Ltd.,** exhibit eight examples from their range of elevating plant, three of them being actually in operation. The passenger/goods hoist is of a type used exclusively on high structures for raising men and materials, often up to 425 ft. A notable example is one which until recently was operating to a height of 360 ft. on the Victoria Tower, Houses of Parliament. The concrete elevating plant shown is representative of a range of several sizes to suit all concrete constructional requirements, including high speed equipments suitable for operating to heights over 400 ft. The range of tower mast platform hoists covers five sizes up to 2½ ton capacity and all are high speed equipments fitted with safety devices and limits. The exhibit demonstrates operation of these features including automatic bottom limit. The 'Mastermobile' platform hoist is a recently developed new class of mobile hoist for use on widespread structures. Site movement is made easy by incorporation of power drive to roadwheels which includes automatic braking when control is released, and it is powered by a 5 h.p. diesel engine, the hoisting capacity being 10 cwt.

Among the winches shown is the diesel-driven 35-cwt. capacity winch which incorporates a foot-operated Servaux auxiliary brake permitting of precise 'inching' control, and a 5-cwt. lightweight winch in special dural alloy which weighs only 3½ cwt.

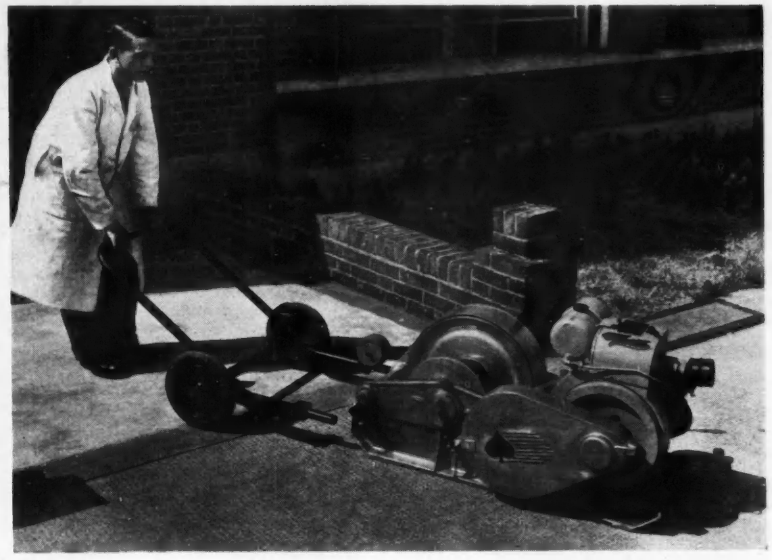
Stand A, 415: **Acme Wringers, Ltd.,** on an attractive stand, exhibit both hand-operated and power-operated domestic wringing machines. The former models incorporate the now famous 'pressure indication,' a development which, by assuring the correct pressure for every kind of fabric, takes the guesswork out of wringing. Silks, cottons, woollens, and linens receive exactly the right pressure needed to extract water, expel embedded dirt and preserve the life of each fabric. Thus wringing is made simpler and easier.

Stand C, 202: **C. R. Averill, Ltd.,** have a stand on the same corner site as in 1950, 18 ft. x 20 ft., and exhibit finished products in two showcases on the front of the stand, in the rear there is a comfortable lounge. Also exhibited is a solid lump of graphite weighing approximately 1½ cwt., in addition to samples of graphite ores displayed in a realistic way with several grades of processed graphites for all uses, and their relation to the finished products.

The display of 'Avarc' graphite specialities includes the three main pure flake lubricating graphites—No. 1 coarse, No. 2 fine, and No. 3 very fine, and, of course, 'Avarc' graphite pipe joint compound, which is used largely for steam flanged and screwed joints, is also shown.

A full range of graphite greases, is exhibited, including a high temperature grease specially designed to stand up to a temperature of 400°F., a quick action graphited oil, a solid graphite lubricating stick, and a colloidal graphite concentrate for mixing with oil, petrol or water, and mainly designed to improve lubrication of the modern motor-car engine. A feature of the stand is a display of process panels showing the use of 'Avarc' silica-graphite paints for the protection of iron and steelwork, and also panels showing heat-resisting and chemical-resisting paints and synthetic finishes.

Stand D, 203 and 102: **B.V.C. Industrial Constructions, Ltd.,** a subsidiary of the British Vacuum Cleaner & Engineering Co., Ltd., which exhibits domestic equipment elsewhere at the exhibition, shows industrial plant for such purposes as flue dust removal. Already widely used in the gas industry, this plant, model T.87, has a large capacity, is mobile and has a water-cooled container for receiving hot dust and smouldering ashes. One of the principal advantages is that it can be used by up to four operators for surface cleaning. Other exhibits include pneumatic and ash-sluicing plant for electric power stations. Incidentally, 1951 marks the 50th anniversary of the British Vacuum Cleaner & Engineering C., Ltd. It was in 1901 that Mr. H. Cecil Booth, present Chairman of the Company, invested and patented the first Vacuum Cleaner.



Our photograph shows the ACE 5 cwt. lightweight winch made in special alloy, and the 'swing-under' type pick-up trolley.

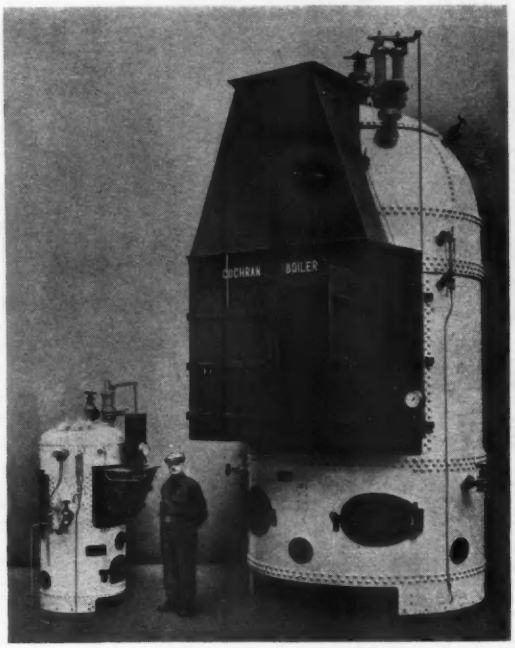
This is the 10B Muir-Hill dumper which is particularly suitable for conveying coke and other light material. Made by Boydell & Co., Ltd.

Stand D, 509: **Birlec, Ltd.,** have this year broken what was almost a tradition by not featuring furnace equipment. However, the stand is in its usual position, and exhibits instead Birlec-Lectrodryer equipment for the controlled dehydration of gases, including air, and certain organic liquids. Lectrodryers employ activated alumina as the drying agent—a hard, granular, porous material with the ability of taking up, or absorbing, moisture on its surface area and giving it up again when heated. By using two beds of alumina, therefore—one absorbing and the other being reactivated—continuous drying takes place, the functions of the two beds being alternated, either manually or automatically, on a predetermined cycle.

The uses for Lectrodyrers fall broadly into two classes:—(1) the humidity control of large enclosed spaces, such as storage or work rooms; and (2) the drying of gases for processes such as furnace atmosphere control, instrument operation, etc. Units of each type are exhibited on the stand.

The air conditioning plant is a model CHG Birlec-Lectrodryer which supplies

continuously over 20,000 cu.ft. of dehumidified air per hour. This model is electrically reactivated although similar units incorporate steam- or gas-heated coils to extract moisture from the alumina. The process gas dryer, model BWC 1500, will be installed at an oil refinery abroad for maintaining a supply of dry air to air-operated instruments. Capacity of this unit is 1,200 cu.ft. per hour. The alumina is reactivated by steam and the outlet gas can be dried to very low moisture content. The Lab Lectrodryer is shown as a minor display; this small compact unit has found many uses in research, pilot or small-scale process work.



The illustration shows (left) a 3 ft. diam. 6 ft. 9 in. high Cochran boiler for a coal-fired duty of 250 lb. of steam per hour and (right) a 9 ft. diam. 19 ft. high Cochran boiler for a coal-fired duty of 6,360 lb. of steam per hour.

Stand Outdoor, 1301 and 1200: **E. Boydell & Co., Ltd.,** show their range of 'Muir-Hill' dumpers from 3-4½ cu. yd. capacity and also shunting tractors for siding handling of goods wagons. Most interesting of the exhibits, however, is the L.H.1 hydraulic loader, which although not yet advertised, is causing considerable interest in the gas industry owing to its exceptional manoeuvreability. It is available with alternative types of bucket, fork lift, dozer blades, etc., which extend its field of usefulness. A high degree of stability has been attained and speeds up to 12 miles an hour are available while excellent visibility is afforded the driver at all times. The hydraulic action is both powerful and speedy and the bucket control permits full or partial discharge. All controls are simple, accessible and light, reducing driver fatigue to a minimum.

A petrol engine developing 35 b.h.p. is standard, or an equivalent diesel engine may be supplied. The chasis is of all welded construction with articulated forged steel front axle. Steering is by heavy duty box and a novel split track rod affording the small turning circle of 15 ft. Girling mechanical brakes are employed and the transmission is of the unit construction type with a gear box giving two speeds in either direction through worm reduction final drive with full-floating axle.

Stand D, 440: **Geo. Bray & Co., Ltd.,** exhibit on this stand their range of flat flame and cylindrical jet burners for use with coal gas, acetylene, Calor, butane, propane and natural gases, and also domestic incandescent and street lighting burners for coal gas and butane.

Bray flat flame burners are, of course, used in water heating appliances of all types, cookers, portable boiling rings, fires, radiators, stoves, boilers, overhead radiant heaters, canteen equipment, infra-red drying ovens, clothes drying cabinets, hot closets, furnaces, etc. A recent development worthy of note has been the adoption of Bray flat flame non-atmospheric jets for cookers both on the hotplate and in the oven, and also for portable boiling rings, etc., instead of cast iron atmospheric burners as fitted in the past. One of the most recently developed burners is the No. 516 which has been designed for use on all types of domestic and industrial heating apparatus.

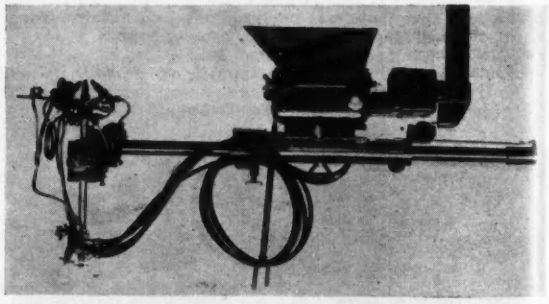
Stand Outdoor, 1107 and 1006: **W. E. Bray & Co., Ltd.,** exhibit five examples of mechanical handling equipment. They consist of three Bray 'Hydraloaders,' fitted with ¼, ½, and 1 cu. yd. capacity buckets respectively, a Fowler mark VF tractor fitted with Bray dozing equipment, and a 'challenger' Mark III tractor, also fitted with Bray dozing equipment. The 'Hydraloader,' operated on the Bray hydraulic system and powered by diesel, petrol, or kerosene engines, is an impressive machine which boasts finger tip control, unobstructed vision, headroom under 7 ft. and electric starting.

Stand D, 723: **The British Ermeto Corporation, Ltd.,** exhibit their well known couplings and valves embodying the patented Ermeto sealing ring, suitable for the highest industrial pressures and for steel, stainless steel, copper, aluminium and brass tubes. The Ermeto joint is reliable and, it is claimed, can be left for years without attention. Moreover, it is quick and simple to use, does not require skilled labour, unaffected by vibration, and although it can be made and broken indefinitely, it is completely pressure tight under all conditions.

Stand D, 526: **British Jeffrey-Diamond, Ltd.,** display a selection of machines representative of the scope of their crushing equipment. The 42 in. by 36 in. Flextooth crusher enables large friable or semi-friable materials to be reduced to products between 1½ in. and ¼ in. in one operation. Its low overall height and compact construction make the machine an easy unit to install in new or existing plants, allowing ample room for the provision of feed and discharge chutes. These crushers are available in seven sizes from the 20 in. by 16 in. machine to the 42 in. by 48 in. machine. When handling coal, capacities up to 250 tons per hour can be maintained. The exhibition machine has been sold to reduce 120 T.P.H. of coal from a 6 in. feed size to a product all below ¼ in. and is driven at 380 r.p.m. by a 90 h.p. motor.

Other machines exhibited include a 15 in. by 8 in. rigid hammer crusher, a 36 in. by 36 in. swing hammer pulveriser, a 15 in. by 8 in. 'Atomill' fine grinder, and a 'Microid Atomill.'

Stand D, 201 and 100: **The British Oxygen Co., Ltd.,** are exhibiting light oxy-acetylene welding and cutting equipment, including the DH and CH general purpose blowpipes, and Nos. 1 and 2 'Cutogen' hand cutters, and the 'Cutogen' No. 4 combined welding and hand cutting blowpipe. In addition to this range of popular general purpose equipment, oxy-acetylene lead burning outfits with the Model 'O' light duty blowpipe are shown.



Outstanding among the exhibits of the British Oxygen Co., Ltd., is this plate edge preparation machine.

. . . WESTON-SUPER-MARE

The New and Fourth Installation of Intermittent Vertical Chambers at the Weston-Super-Mare Station of the South Western Gas Board. The third installation is in the background.

THE WOODALL-DUCKHAM VERTICAL RETORT AND OVEN CONSTRUCTION CO. (1920) LTD.

WOODALL-DUCKHAM HOUSE, 63-77 BROMPTON ROAD, LONDON, S.W.3

Members of the Society of British Gas Industries

Telephone: KENsington 6355 (7 lines)

Telegrams: Retortical, Southkens, London

TOWER BRIDGE, LONDON

"..that reminds me of MY

PARKINSON

RENOWN

EXCLUSIVE DROP DOOR"

THE PARKINSON STOVE CO. LTD. BIRMINGHAM 9

A Member of the Parkinson & Cowan Group

In machine cutting, a feature of special interest is the P.E.P. (plate edge preparation) machine fitted with the 'Multifloat' attachment. This combination is used for preparing the edges and ships' plates, etc., for welding by the simultaneous sizing and cutting of bevels and nose on the plate edges. With four machines running on a suitable track all four sides of the plate can be cut at the same time. Curves can also be cut on one or more of the plate edges while the other cuts are in progress.

Other cutting machines demonstrated are the 55 in. and 36 in. U.C.M.'s (universal cutting machine) and the P.S.L. (portable straight line) cutting machine. Portable welding outfits, consisting of blowpipes, regulators and oxygen and acetylene cylinders mounted on lightweight trolleys are displayed. Rods and fluxes for welding, building up and hardfacing are available for most ferrous and non-ferrous metals and the majority of alloys in both classes. The 'Argonarc' process is featured together with the latest additional equipment which includes, amongst other things, a water-cooled shield on the Mark III torch for continuous heavy duty work. The Mark III water-cooled torch and the C.P.U. 300Q and M.G.300 power units are used for demonstration purposes. The A.W.M.3 automatic 'Argonarc' machine is also shown.

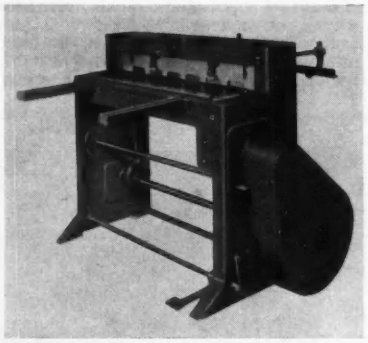
The De La Rue large capacity cooker, type G.5 with plate rack.

Stand A, 642: **The British Steel Wool Co., Ltd.,** on an attractive stand, exhibit their well-known product 'Alco' steel wool in grades for all purposes and in all sizes of pack. These include the smaller domestic boxes favoured by gas undertakings for sale to customers for cleaning cookers and other appliances. Non-ferrous metal wools for air filtration are also shown—*e.g.*, aluminium, brass, and copper.

Stand C, 511 and 410: **The British Thomson-Houston Co., Ltd.,** display, against a background of heavy electrical plant, augmented by dioramas, photographic displays, and a scale model of a hydro-electric station, a comprehensive selection of B.T.H. products. The exhibits include power station and industrial switchgear; a three-phase high-voltage contactor unit particularly suitable for such applications as the control of stator circuits of large induction motors driving mine hoists; electric motors from fractional horsepower sizes up to 50 h.p.; part of the B.T.H. electronic control equipment for the *Daily Mirror* newspaper printing machines; 'Clearcall' industrial communication equipment; industrial electric control gear, including 'Stacreep' crane control; thrustors; suds pumps; industrial electric heaters; 'Fabroil' pinions; and the latest developments in Mazda lamps and lighting equipment. Many of these exhibits are operating, and a halogen vapour leak detector, a gaussmeter for determining the strength of magnetic fields in very small air-gaps, and a fluorescent component tester, are also available for demonstration to interested visitors.

The Type H leak detector enables leaks in pressurised systems to be located with speed and accuracy and being a compact and portable instrument it is equally suitable for use in the laboratory or on the assembly line. Its basic principle is the detection and audible indication of the presence in air of parts-per-million of the vapours of the halogenated compounds, such as carbon tetrachloride, trichlorethylene, Arcton (C Cl_3 F_3), etc. An example of its sensitivity is the fact that it can at once detect a leakage of Arcton at the rate of 0.02 oz. *a year.*

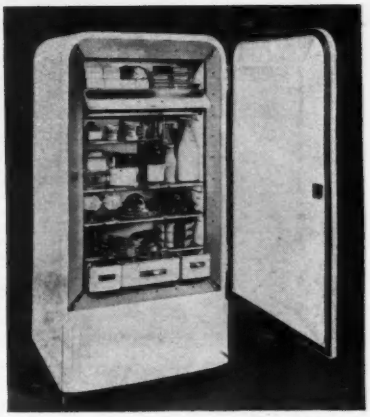
Stand D, 615: **British Tyre & Rubber Co., Ltd.,** display their range of B.T.R. conveyor and transmission belting, 'V' belts, hoses and tubings, vibro-insulators, anti-corrosive and anti-abrasive rubbers, rubber/metal components, rubber linings, coverings, mouldings and extrusions, and flexible pipes. One of the principal features of this firm is, of course, its mobile belt service which is available anywhere in Great Britain for the examination and repair of conveyor and transmission belts and for making new belts on site.



A neatly-designed power guillotine manufactured by F. J. Edwards, Ltd.

Stand D, 405 and 304: **The Brockhouse Heater Co., Ltd.,** has a share of the large stand of the Brockhouse organisation (J. Brockhouse & Co., Ltd.) and exhibits industrial and domestic boilers for use with oil gas, and solid fuel. Brockhouse gas-fired steam boilers have all steel bodies with riveted side and end plates to ensure long life, and are available in a range of sizes from 30-400 lb. of steam per hour. Installation is simple as the boilers can be connected to existing gas and water supplies. The Brockhouse automatic condensate return system can be supplied complete with drawing, wiring diagram and fixing instructions, ready for connection to steam condensate mains to give fully automatic control combined with economy and efficiency. Alternative water feed arrangements are available to suit any conditions.

Stand Outdoor, 1201 and 1100: **Broom & Wade, Ltd.,** exhibit examples of their well-known range of compressors. A new addition to the portable models is Type SVD 606 which is mounted on four pneumatic-tyred wheels. Actual delivered capacity is 500 cu. ft. of free air per minute at 100 lb. per sq. in. pressure, when running at 1,100 r.p.m. The compressor is driven by a Ruston six cylinder diesel engine developing 132 b.h.p. Starting is effected by a J.A.P. 600 c.c. petrol engine incorporated in the unit. This portable set is to be seen in operation on our stand.



The L.700 refrigerator which is the model mainly featured by Electrolux, Ltd.

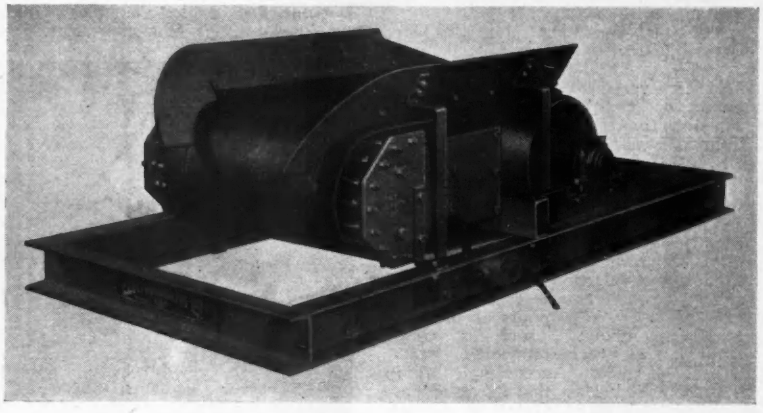
Another portable is Type SV.78 portable, patented sleeve-valve compressor, powered by a 24 b.h.p. petrol engine, and mounted on two pneumatic-tyred wheels, which is presented as a complete-unit. It is driven by a small electric motor. The set represents the embodyment of the latest compressor design. The arrangement incorporates unit construction with tubular receiver chasis, reducing dimensions to the absolute minimum and the weight to less than 13 cwt. Actual delivered capacity is 60 cu. ft. of free air per minute at 100 lb. per sq. in. pressure, when running at 1,500 r.p.m.

Stand C, 619: **Chance Bros., Ltd.,** exhibit a wide range of equipment, varying from the 'Flamemaster' hand torch to a square beam airport location beacon. However, the products best known to the gas industry are, of course, 'Sumo' pumps. A submersible electric pumping unit is actually demonstrated on the stand operating in a tank and causing water turbulence.

In addition to this working model, there are three or four static models,

of varying types and sizes. The 'Sumo' self-contained pump for deep wells and boreholes is easy to install, requires no pump-house and little maintenance. It is claimed that because it is totally submerged, there are no suction troubles, and this pump causes no radio interference. Capacities range from 200-60,000 g.p.h.; heads up to 800 ft.

Stand C, 301: **Chloride Batteries, Ltd.,** have employed a very novel form of presentation. A large-scale cut out map of Great Britain—14 ft. in length—glitters with lights from London to Glasgow, the main centres of the Festival in England and Scotland. The route of the Land Travel Exhibition is also traced, and the course of the Festival Ship Campania. All these sections of the Festival bear witness to industry's dependence on the storage battery. The Royal Festival Hall contains a Chloride Keepalite emergency lighting equipment—the largest 'Keepalite' 'B' automatic floating battery system ever supplied. Other 'Keepalite' equipment is used elsewhere in the Festival, and the firm's contribution to the Festival is further strengthened by the use of a battery-operated crowd-counting apparatus which simultaneously counts the number of people entering through the 90 turnstiles and the number of those leaving, subtracting one figure from the other. Traction batteries are also prominent at the Festival with the increasing use of electric trucks. Lastly, batteries are used for a mobile loud-hailer, for the fire alarm system, for electric clocks, and for hand-lamps.



A new super intensity magnetic feeder unit exhibited by Electromagnets, Ltd.

Stand D, 435: **Cochran & Co., Annan, Ltd.,** exhibit a multitubular vertical boiler 9 ft. in diameter, 19 ft. high, and 100 p.s.i. This is actually suitable for firing by hand, mechanical stoker, or oil-burning equipment. The well-known 'Sinuflo' gas-fired boilers are illustrated by means of photographs. The stand also includes two scale models—one of a Cochran induced draught 'Sinuflo' economic boiler, and the other of a vertical multitubular boiler shown in half section.

Stand Outdoor, 1332 and 1387/1226: **George Cohen, Sons & Co., Ltd.,** have a particularly wide range of exhibits including power presses, sheet metal and plate-working machinery, and concrete mixers. Very familiar to the gas industry, however, is the Jones KL series of cranes. One of these—the KL 66 mobile crane is shown here for the first time.

This crane is designed to meet the requirements of high speed for grabbing or operating with a magnet, and great sensitivity of control for handling fragile merchandise and for the accurate placing of constructional units in building. The rated maximum load of 6 tons (which is, in fact, no more than 66⅔% of the actual tipping load) is taken at 9 ft. radius and can be hoisted at speeds up to 40 ft. per minute. Lighter loads up to 2 tons can be hoisted at 120 ft. per minute. Jibs of various lengths up to 60 ft. are available.

A differential is employed in conjunction with four-wheel drive. This makes wheel-spin impossible, and gives great tractive power. It has, in fact, been found almost impossible to get the KL 66 'bogged' in anything but a hopeless morass. It can be supplied as a mobile crane on pneumatic-tyred restrictor wheels, or on crawler tracks. It is also available on a rail chassis, or lorry mounted, or on a fixed base suitable for mounting on a platform or wharf.

Stand Outdoor, 1308: **The Consolidated Pneumatic Tool Co., Ltd.,** exhibit a complete range of equipment for civil engineering contractors, etc., embracing air compressors from 63 to 500 cu. ft., breakers, claydiggers, picks, drills, pumps, vibrators, etc. These compressors and accessories are remarkable for their dependable performance, sturdy construction, and their extreme ease of handling.

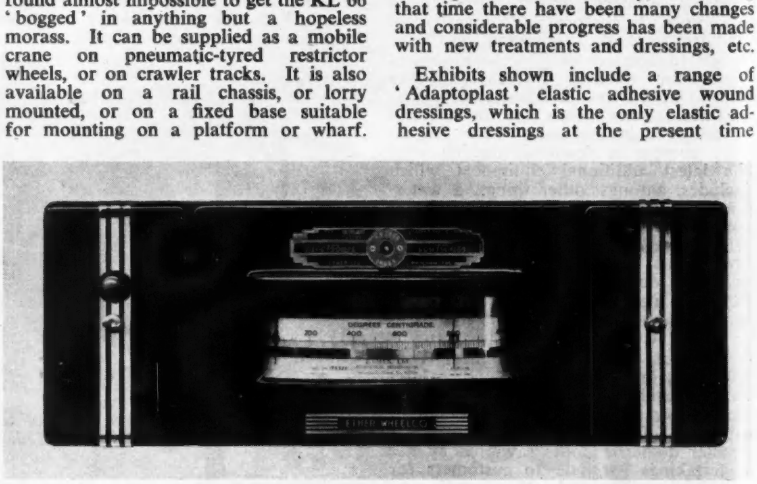
Stand D, 314: **Crane, Ltd.,** have a display which is mainly confined to valves and fittings for the industrialist. It includes a representative range of gun metal globe and gate valves, cast iron wedge gate valves, non-rising stem and outside screw and yoke patterns, for steam, water, oil or air pipe lines. Also shown are cast steel wedge gate valves, 150 lb. and 300 lb. series in accordance with B.S. 1414-1949, and A.P.I. Standard No. 600A, for the petroleum and allied industries. Malleable iron plain and banded pipe fittings screwed with taper threads, cast iron flanged fittings, etc., are also exhibited. In addition, there is a small number of boilers, both domestic and central heating models, as well as examples of cast iron radiators.

Of particular interest to the gas industry is the series of cast iron clamp gate valves, either all iron construction or gun metal trimmed, wedge gate, or rising stem.

Stand D, 723: **Crosthwaite Furnaces & Scriven Machine Tools, Ltd.,** exhibit their well-known mechanical stoker with self-cleaning grates and fan-air equipment. Also shown is the Junior type mechanical stoker with fixed forced draught grate and fan plant, and also fixed forced draught grate and fan-air equipment suitable for a vertical type boiler.

Stand B, 516: **Cuxson, Gerrard & Co., Ltd.,** claim to be the only manufacturing chemists exhibiting at the Castle Bromwich section of the Fair. They are showing their range of industrial first aid requisites. For fifty years the firm have been supplying the specialised first aid requirements of industry, and during that time there have been many changes and considerable progress has been made with new treatments and dressings, etc.

Exhibits shown include a range of 'Adaptoplast' elastic adhesive wound dressings, which is the only elastic adhesive dressings at the present time treated with 'Euflavine.' Also on display is the 'Santulle' range of dressings. These consist of pieces of open mesh tulle approximately 3¼ in. square, medicated with a sterile base, ready for immediate application. The dressings available at present in this range are penicillin, paraffin gauze and sulphathiazole 5%.



The Ether-Wheelco, proportioning controller, Model 251P., made and exhibited by Ether, Ltd.

The latest patterns of first aid outfits and officially approved dressing are displayed, and an interesting small display piece shows how catgut for surgical operations is produced and processed. A good range of ambulance room furniture is exhibited, including screens, examination couches, cabinets, chair stretchers, etc. A portion of the stand is equipped as a modern ambulance room.

Stand D, 757 and 656: **Thomas De La Rue & Co., Ltd.,** have as the focal point of their stand an octagonal drying tunnel 9 ft. in length, incorporating eighteen Potterton gas-fired infra-red panels, and fitted with a mono-rail conveyor with variable speed drive. Temperatures up to 750°F. may be obtained in the tunnel shown, and this normally provides a margin of extreme value, when really heavy articles, such as iron castings are required to be dried. The tunnel has a maximum gas consumption of 1.8 therms per hour, but in practice this figure is never reached, as the gas rate of the higher banks of panels is less than that of the lower, and experience has shown that the actual consumption is approximately 1.3 therms per hour under working conditions.

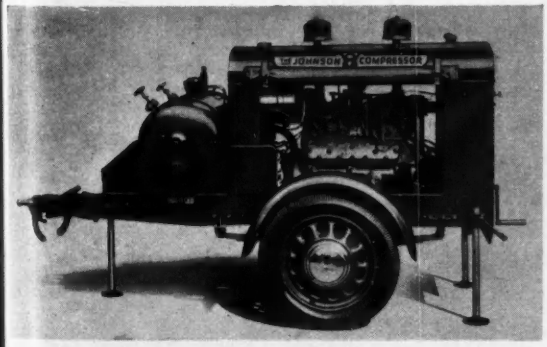
The Company's activities in the field of hot water supply and central heating are represented by a display of four Potterton gas-fired boilers including the smallest and the largest boilers in a range which provides heating capacities from 20,000 to 1,250,000 B.Th.U. per hour. Also shown is a range of 'Perfecta' thermostats and control valves, and the De La Rue large capacity cooker.

Stand D, 621 and 520: **The Dunlop Rubber Co., Ltd.,** (Aviation Division) exhibit a considerable range of flexible rubber pipes for conveying fluids, gases, etc., and for actuation.

Stand A, 503: **Easiwork, Ltd.,** present a selection of pressure vessels ranging from 1-11 gal. capacity, including the 'Easiwork Health Cooker' and the 'Easiwork Pressure Saucepan' for domestic use, and autoclaves and portable steam sterilisers for commercial and hospital laboratories. These 'Health' cookers can roast, bake, steam, stew, fry or braise a complete meal for a whole family in 20-30 minutes over any type of stove. It is claimed that the method of controlled steam-pressure cooking not only saves hours of time and up to 75% fuel, but also proves most beneficial to the health of the users. The efficient whistle control and highly accurate pressure gauge ensuring best results always.

Stand D, 411: **F. J. Edwards, Ltd.,** exhibit a wide range of machinery including six new models, four of which are of particular interest to the sheet metal working and allied industries, while a new inclinable power press and bar cropping machine will interest those concerned with press work and structural engineering respectively. The press is the model B.A. Mark II, which has a range of three sizes with the stroke adjustable throughout the range from the normal ¼ in to 1¼ in. in the smallest, to 2¾ in. and 2¾ in. in the two larger sizes respectively, with pressure exerted varying between 10, 18, and 28 tons, according to size. The ram is of generous proportions running in long adjustable guides, and the length of the slide is designed to obviate deflection and ensure a maximum efficiency and working life for tool and dies, and the connection between pitman and slide is by a buttress threaded ball-end type screw, manufactured from a high carbon chrome steel, and subjected to heat treatment. Power is supplied by a motor mounted on the top of the body member on a platform which is adjustable to variation in the tension of the driving belts, the rating in each case being 2, 3, and 4 h.p. at 750 r.p.m.

Stand C, 736: **Electrolux, Ltd.,** feature the model L.700 which is characterised by its graceful modern lines. It has a bow-front door with vertical type, chromium-plated door handle. External finish is in high gloss white enamel with black enamelled plinth, and the porcelain enamelled interior, with facing and inner door panel of hygienic plastic material. The model has large frozen storage and ice-making compartment. Fittings include four brightly-plated shelves which are conveniently arranged, three covered food containers, large vitaliser drawer with glass cover, two utility drawers, five ice trays with lever handles, each providing 16 cubes. Two ice trays are fitted with flexible cube dividers to allow removal of individual cubes.



The adaptable V8 compressor manufactured and exhibited by C. H. Johnson (Machinery), Ltd.

Stand C, 605: **Electromagnets, Ltd.,** exhibit a comprehensive range of both permanent and electromagnetic separators, including magnetic pulleys, chute type separators, floor sweepers, swarf separators, high intensity electromagnetic chute type separators, etc.

An exceptionally outstanding exhibit is the newly developed super intensity magnetic feeder unit. These machines represent a tremendous advance in magnetic extraction. The feeder unit takes takes the general form of a shortband conveyor, but the conventional magnetic pulley, which is widely used on such plants, is replaced by an entirely new magnetic head, around which is contoured the rubber and canvas conveyor belt. Limitations on space of magnetic circuit and winding which are normally imposed by pulley or drum diameter are completely removed, and an intensity of magnetic field three or four times greater than that given by a magnetic pulley or drum of equal size is obtained. Additionally, a continuous discharge of tramp metal is provided. The applications for which these new magnetic feeder units are suitable cover many trades such as grain and provender milling, scrap metal segregation, chemical works, food processing, iron foundries, mining and quarrying, coal preparation plant, etc.

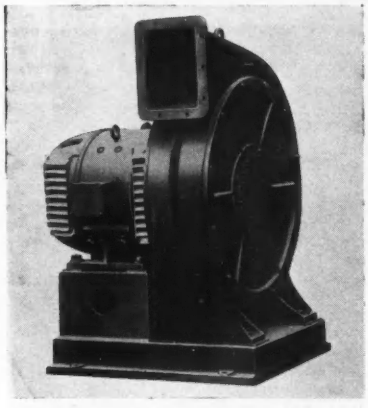
A direct-fired gas unit heater exhibited by the Harris Engineering Company. The unit is fitted with thermostatic control.

Stand C, 320: **Elliott Brothers (London) Ltd.,** exhibit their well-known range of electrical measuring instruments. Included among the exhibits are electrical testing sets, transformers, laboratory equipment, thermocouples, electrical speed indicators, magnetic amplifiers, humidity meters, temperature recorders, indicators and regulators, pyrometer, analysis equipment for flue gases and for food preservation, etc.

Stand C, 613 and 512: **The English Electric Co., Ltd.,** exhibit such products as electronic equipment, high rupturing capacity fuses, electrical instruments and all types of generation equipment. The firm is, of course, well known for its production of units running on town, natural, producer or sewage gas, which give the same output on gas of a high calorific value as on fuel oil. If the gas supply fails, changeover to oil is automatic.

Stand C, 700: **Ether, Ltd.,** features the Ether-Wheelco range of electronically-operated temperature controllers. The

Ether-Wheelco proportioning controller, Model 251 P. gives a simple proportional control, and is particularly suitable for electric furnace use. The 'Xactline' anticipatory control device shown is used in conjunction with the 'Capacitrol' in order to eliminate 'hunting' in a controlled variable due to thermal capacity. The 'Flame-otrol' combustion safeguard is also exhibited with electrode



A Keith Blackman 36 in. cast iron blower for gas boosting, etc.

for use in conjunction with gas-fired apparatus and photo-cell for oil fired apparatus. Various ancillary equipment for use with this device is also exhibited, such as air pressure and gas pressure switches. A comprehensive range of motor and solenoid-operated gas and air valves is shown for use with the above, some of these valves being of the hand reset type for manual opening. The electronically - operated 'Widestrip' potentiometer is shown, working in conjunction with resistance bulbs actually to measure the temperature of the exhibition hall itself.

Stand D,513 and 410: **Ewart Chainbelt Co., Ltd.,** displays a full range of malleable iron chains for conveying, elevating, and driving purposes, and also sprocket wheels. A working model of a handling plant for bulk material comprises a storage hopper which discharges through an adjustable gate to a belt conveyor, which in turn feeds the material to a drag link conveyor. This transfers the material down a shute to the boot of the Bucket elevator, which elevates the material to the storage hopper. Another working model shows a sectionalised building in which is installed a finger tray type elevator for packages, feeding to a discharge grid on the upper floor. From this grid the package descends to lower floor by means of a gravity roller conveyor fitted with suitable tapered rollers at bends, and the package is fed directly on to an inclined slat conveyor. This carries the package to a suitable height and discharges to a gravity roller conveyor which takes the package forward to the special automatic spacing devices preceding the elevator, and this allows only one package to be presented on the feed grid of the elevator at one time. This completes the circuit of this layout.

Stand C, 419: **Falk Stadelmann & Co., Ltd.,** exhibit fluorescent and tungsten lighting fittings, 'Raydex' cooking and heating appliances, wiring accessories, switchgear, and 'Hitest' cables and flexibles.

Stand D, 312: **Fibreglass, Ltd.,** feature the insulation of domestic equipment with glass fibres. Such insulation is increasing the efficiency and reducing the bulk of most refrigerators and cookers manufactured in this country, on the stand is a convincing demonstration of this efficiency. Some unbaked scones are placed in a hot oven together with several cartons of ice-cream wrapped in 'Fibreglass' insulation. About 15 minutes later the scones are taken out baked and the ice-cream removed still frozen hard.

Stand C, 503 and 402: **The General Electric Co., Ltd.,** has a stand divided into two parts, one of which is devoted to turbo-alternators and coal handling plant, and the other to certain designs of indoor switchgear selected from the wide range produced by the Company. Scale models of typical 30 MW and 60 MW turbo-alternator with their associated auxiliaries provide visual comparison of the space required for sets of these standard B.E.A. ratings. A working model of a Fraser and Chalmers Marshall side discharging wagon tippler is shown operating in a closed circuit with a system of Sherwen electromagnetically operated vibrating feeders. Dominating the whole of the stand is a 33 kV, 1,500 MVA duplicate busbar, heavy duty metalclad unit for main power station service. This is the largest unit in this range of switchgear which covers equipment for voltages from 6.6 kV to 33 kV with breaking capacities up to 1,500 MVA. Other exhibits include the range of air-brake switchgear, and a comprehensive range of components for remote control boards.

Stand D, 212: **Goodyear Tyre & Rubber Co. (Great Britain), Ltd.,** exhibit prominently in their display a wide range of conveyor beltings. Included in the range are oil resisting belts, heat resisting belts, and examples of belting specially designed for work in the food industry. There is also a wide range of transmission belting from 2 ft. 6 in., diameter 2 in., width to 4 ft. 6 in., diameter 6 in. width and a framed display featuring a typical Goodyear endless cord belt on pulleys. Belting of standard types is also shown. Featured also on the Goodyear stand are stepped down lengths of rotary drilling hose and the new E.R.200 hose which, manufactured with rayon reinforcement, is specially designed for loading and unloading heavy duty petroleum products.

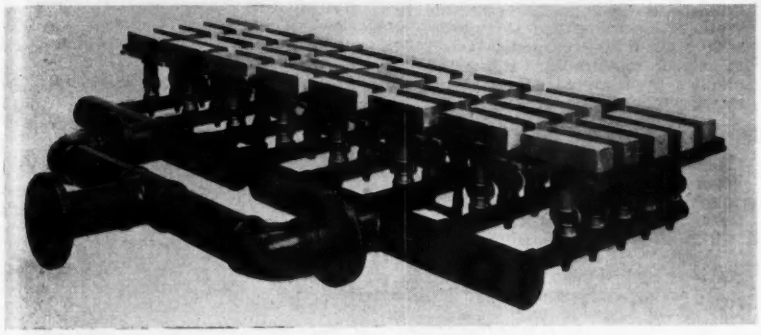
Stand D, 305 and 204: **Graphite Products, Ltd.,** exhibit lubricating graphites and graphites for all purposes, mould lubricants, white, red, manganese and graphite jointing compounds, graphite greases, silica-graphite paints, and special belt dressings, etc.

Stand B, 629/526 and Outdoor 1325/1224: **Guest, Keen & Nettlefolds, Ltd.** —The former stand in the main building exhibits screws, bolts and nuts of all descriptions, 'Parker Kalon' self-tapping screws, and patent Phillips recessed head screws, hank rivet bushes; 'Sems' fastener units, hot and cold rolled strip, aluminium alloy nails, and steel hinges of all descriptions. The outside stand features exhibits of the G.K.N. group of companies and includes such items as upset and drop forgings and press forgings, engineering hand tools, electro-plating, agricultural requisites, etc.

Stand D, 444: **Harris Engineering Company** have, as the main feature of their stand, their direct-fired gas unit heater which has been found to be highly successful for the heating of industrial and business premises. Being direct-fired, it has a high efficiency, the heat value of the gas being fully utilised. A special feature of these units is the

A striking photograph of the NCK 304 excavator with grabbing crane attachment exhibited by Newton Chambers & Co., Ltd.

inclusion as a standard item, of Thermostatic room temperature control, which means that the unit is entirely automatic in operation requiring no attention whatever. There is a permanent pilot, and the unit is fitted with flame failure and overheat safety controls; also there is a useful range of sizes available commencing with 20,000 B.Th.U. per hour and going up to 150,000 B.Th.U. per hour.



The No. 5 burner, exhibited by Radiant Heating, Ltd., which can be built up into burner equipment to form a hearth.

In addition to the standard range of gas unit heaters there is available a special gas-fired plenum plant complete with ducting, which is specifically designed to deal with cellulose spray rooms, and other buildings where direct-fired gas unit heaters are unsuitable. This plant is fited with a special Davy gauze safety filter.

Stand B, 329: **G. A. Harvey & Co. (London), Ltd.,** exhibit components necessary in the fabrication of high pressure vessels and steel platework, including 'Rotarprest' heads 5 ft. to 15 ft. in diameter, and up to 4 in. thick, die-pressed dished and flanged ends 6 ft. to 9 ft. diameter, and channel, angle and flat bar rings. An outstanding exhibit in this connection is the display of cold rolled rings, which are an indication of the type of work produced.

The range of 'Harco' perforated metals exhibited is particularly interesting. Patterns are available for all screening, grading, cleaning, sorting and filtering requirements. Architects and contractors will be attracted by the artistic patterns exhibited in perforated metals for such items as radiator covers, pipe guards, ventilating panels, etc. 'Harco' woven wire cloth is displayed in a variety of metals in all meshes and gauges, and also 'Tapergil' gilled tubes in various diameters and pitches.

Stand B, 610: **James Howden & Co., Ltd.,** exhibit a wide range of steel office furniture, but the firm also produces and displays such engineering products as: Forced and induced draught fans, pulverised fuel exhauster and primary air fans, axial flow fans, vane control of fan output, Howden-Ljungstrom regenerative air preheater (working model), Howden-Lysholm compressor, Howden 'Centicell' dust extractor and Howden 'Multi-vortex' dust extractor (one demonstration unit of a single cell and two diagrammatic models), down-flow vortex dust collector (model), Howden furnace front for coal/oil burning, and smoke door fastenings and 'Instanter' quick-closing sluice valve.

Stand D, 136: **The Hymatic Engineering Co., Ltd.,** exhibit a representative range of electric or petrol driven static, mobile and portable 'Hymatic' compressors, among them the IS10X, IS20 and G1, robust receiver-mounted sets of the static type suitable for use in garages, workshops and small factories, etc.; the HMS12 and HMS25, both medium-powered mobile models widely employed in the building and allied industries; the HPS2/TR and the HMS7/PR, smaller all-purpose mobile sets great numbers of which are used in building, agriculture and factory maintenance, and the HPS1, a self-contained portable unit for taking compressed air power to sites inaccessible to the standard types. This formidable array will be completed by the recently introduced 'Hymatic' DP6, a small electrically-driven diaphragm-type compressor.

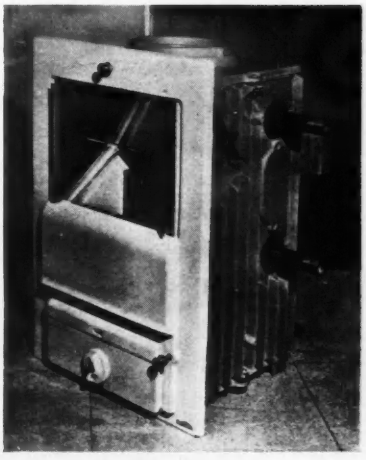
Stand B, 309 and 208: **Imperial Chemical Industries, Ltd. (Metals Division),** display such wrought metal products as strip, sheet, plate, tubes, rods, sections and wire in copper and its alloys and aluminium and its alloys, in small display units of massed metal. Illustrating one of the many activities of the Division's Research Department there is a small team at work determining the stresses set up in various non-ferrous wrought metals, during and after welding, the object being to adjust welding practice so that welds with the minimum amount of stress are produced. There will also be a display of radiographs of finished welds; and an arrangement for taking such photographs using a 'gamma bomb.'

Demonstrating the constant interest of the Division in solving problems of corrosion and erosion in condenser tubes, the stand contains a typical circulation test apparatus of the type in day to day use in the Division. Copper tubes for domestic water, gas and sanitation services together with appropriate fittings are displayed and also 'Kuterlon' long length copper tubing for underground water supplies and panel heating.

Stand C, 727 and 628: **The Incandescent Heat Group** exhibit equipment as follows: The Incandescent Heat Co., Ltd., display metallurgical furnaces and ancillary equipment for all industries, including mechanised furnaces and equipment for sheet and strip, a wide range of foundry equipment, galvanising plant, furnaces for hardening and tempering, bright copper brazing, gas carburising, annealing, normalising, etc. Also complete continuous and static vitreous enamelling plants, continuous pottery and ceramic kilns, etc. Controlled Heat & Air, Ltd., exhibit continuous and static ovens of all types, including tin printing ovens, ovens for vitreous enamel drying, core and mould drying, wire drying etc.; also spray booths, dust extraction and filtration plants, air conditioning plants, etc. Selas Gas & Engineering Co., Ltd., show industrial heating equipment for all purpose, including a wide range of natural-draught and forced-draught gas burners, tilting furnaces for aluminium melting, automatic air/gas mixing and proportioning apparatus, etc.

Stand D, 333 and 230: **International Combustion, Ltd.,** have as their main exhibit a full size LM.14 'Lopulco' mill, as used for grinding coal for combustion in pulverised fuel fired boilers in central power stations and large industrial plants. The Mill, which is complete with a whizzer type separator, is opened up for inspection and the grinding table rotates to demonstrate its function. A model of a current boiler contract illustrates the Drakelow generating station of the B.E.A. Another working model is of a high capacity gravity bucket conveyor handling coal in a power station. Also shown is the 'Dynacone' centrifuge and 'Vacseal' pump. The 'Dynocone' is the first continuous solid bowl centrifuge engineered and manufactured in Britain for classifying and de-watering materials normally handled by rotary filters.

Stand B, 221: **Jenolite, Ltd.,** display their dust-removing preparations and

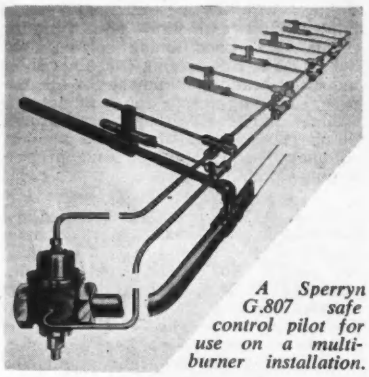


The 'Raymax' self-contained open convector fire which incorporates a large boiler for hot water, plus some radiator service. It is a product of Radiation, Ltd.

a new aluminium degreaser and cleaner. Among the new products is a decarbonising solution for removing carbon deposits from engine valves.

Stand Outdoor, 1329 and 1228: **C. H. Johnson (Machinery), Ltd.,** exhibit their 'Hylo-veyor' with mechanical

shovel hopper. Variable elevation is between 6 ft. and 22 ft. The V8 compressor incorporates two banks each of four cylinders; one bank acts as compressor and the other as power unit, the whole being a mono-block unit based on the 30 H.P. Ford V8 engine. Maximum air pressure is 110 lb. per sq. in.



A Sperryn G.807 safe control pilot for use on a multi-burner installation.

A 2-in. and a 3-in. centrifugal pump are shown and demonstrations are given of the Johnson power rammer.

Stand D, 755 and 654: **Keith Blackman, Ltd.,** exhibit their very wide range of 'Tornado' fan engineering and industrial equipment, five items of which are shown in operation. Compressors, heaters for incorporating in ventilation and air conditioning plants, wet filter for dust removal from high speed grinders, gas combustion chamber for high temperature drying, and many other exhibits are included.

Stand D, 143: **The Kleen-e-ze Brush Co., Ltd. (Industrial Division),** display condenser cleaning guns and bullets, 'Kezcoil' flowbreakers, and 'Keza' tube cleaners. The cleaning guns fire bullets which are, in effect, specially designed radial bushes. Washers are fitted at each end to ensure a maximum delivery of waste matter to the far end of the tube. Inserted into the ends of the section of tubes to be cleaned, bullets are projected by means of the 'Kez' gun, and after use can be used over again (when excessively dirty, a thorough washing in water is necessary). At the far end of the tubes it is customary to suspend a screen of sheet metal to intercept the bullets from the tubes. Any number of tubes can be charged and discharged, a tube at a time.

Stand B, 630: **James Lamont & Co., Ltd.,** exhibit a comprehensive range of their 'Securex' compression fittings which are widely used in the gas industry.

Stand C, 722: **Londex, Ltd.,** exhibit relays, contactors, process timers, control equipment for liquids and solids, flow indicators, counters, photo-electric control gear, pressure and vacuum switches, and flameproof equipment.

Stand B, 525: **Donald Macpherson & Co., Ltd.,** have, as their main display, demonstrating 'Foochow' agricultural and machinery stoving enamels, a 20 ft. long mechanical scale model—a replica of a modern stoving plant, with water wash spray booths, air ducts and exhaust vents, infra-red stoving tunnel, and cooling tunnel. A moving track carries completely assembled tractors through the finishing and stoving tunnels. Tractors move into the tunnel in plain metal, pass through all stages of cleaning, spraying, stoving and out at the far end finished in their final colours ready for despatch to agents.

Also exhibited are several articles including a washing machine and wringer finished in 'Snappol' a new one-coat synthetic air-drying and stoving enamel, with rapid drying properties—air-drying in 40-50 minutes or stoves in 3-4 minutes by infra-red oven, 10 minutes by convection oven at 250°F.

Stand D, 305 and 204: **The Morgan Crucible Co., Ltd.,** exhibit 'Carbinert' impervious carbon and graphite and 'Carblox' refractories, a 'Carbinert' cascade cooler for corrosive liquids, 'Morganite' carbon bearings and seals, 'Triangle' refractories, 'Reservoil' bearings, and 'Foliac' paints, graphites, and jointing compounds. Space does not permit showing any of the large crucible furnaces in the Morgan range, but one item of special interest on the stand is the miniature crucible gas-fired model, a modification of the original paraffin furnace which achieved such a success in the 1950 B.I.F. It has been designed to meet the increasing demand for this deservedly popular furnace.

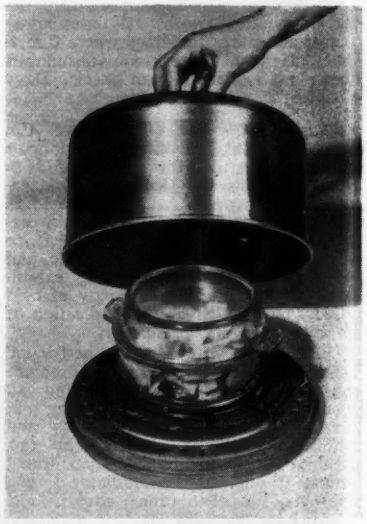
Stand Outdoor 1105 and 1004: **Newton Chambers & Co., Ltd.,** exhibit the NCK model 304 excavator which, owing to its robust construction, enables work to be carried out under the most arduous conditions with high output rates and economical operation. Interchangeable front attachments are available for operation as face shovel, dragshovel, dragline, life crane or grabbing crane, and increasing demands for this machine both in the U.K. and overseas have been forthcoming in recent months. The wide variety of duties which may be covered include open cast coal mining, drainage and reclamation work, housing and general construction schemes and large scale hydro-electric projects which are taking place in overseas countries.

Stand D, 405 and 304: **Orme Evans & Co., Ltd.,** exhibit gas cookers both for town gas and Calor gas, and, among other products, gas-ignited solid fuel fires.

Stand Outdoor 1313 and 1212: **Pegson, Ltd.,** exhibit for the first time their massive all steel 36 in. by 24 in. roller bearing double toggle crusher with sectional body, and in addition. they are also showing their 16B primary gyratory crusher which they exhibited for the first time at the Public Works Exhibition, 1950, and also one of their larger 'Gyrasphere' secondary crushers. For the smaller user, the 24 in. by 5 in. roller bearing granulator is shown, with a typical example of their well-known 'Telsmith' heavy duty vibrating screen. They also show a representative selection of self-priming centrifugal pumps of various types, and in addition there is shown, for the first time, the 4 in. plunger pump, which is now being produced in this country.

Stand A, 327 and 226: **Platers & Stampers, Ltd.,** exhibit their new portable oven (height 7½ in.) which is designed for top-stove baking on any form of heating—gas or electric stove, hotplate, gas-ring, oil stove, etc. It cooks quickly and thoroughly and saves two-thirds of the fuel required for baking in the average oven. Any baking tins or casseroles up to a maximum of 7½ in. in diameter may be used. The base, through which heat is evenly diffused, is of heavy steel. A built-in indicator in the aluminium cover shows the cooking temperature; there are two low temperatures (Nos. 1 and 2), two medium (Nos. 3 and 4) and two high (Nos. 5 and 6), and instructions supplied with the oven indicate the cooking number for each recipe. The oven will roast a joint, cook a casserole, bake tarts, pies, puddings and cakes. Their well-known 'Prestige' and 'Ekcomatic' pressure cookers are also shown.

Stand D, 766: **Radiant Heating, Ltd.,** exhibit their No. 5 radiant burner which is built up into burner equipment to form a radiant hearth. The size of each individual block being about 9 in. by 4 in., it will be appreciated that, with a town's gas rating of about 180 cu.ft. per hour, large quantities of gas can be burned in a relatively small area. The 'Flashrite' burner has been developed for use in conveyorised biscuit ovens, and has been applied to many other tasks. The main attraction of this burner, apart from its robust construction, is—as its name suggests—its ability to ensure perfect ignition from one end of the burner to the other. It can be operated on either high or low pressure gas, in the latter case with a two-stage injector, fan air and low pressure gas or with pre-mixed gas and air.



An unusual portable oven for use on a gas stove or any other form of heating. It is a new product of Platers & Stampers, Ltd.

The 'Dryatherm' clothes drier is an industrial clothes drying rack for the smaller workshop or store, capable of

Emphasis on YOUTH

Increasing attention is being given in the Engineering industry to the important question of apprenticeship training and these illustrations are taken from a recent "Dempster of Elland" publication designed to encourage a steady flow of craftsmen of the best type, into their organisation.

Dempsters of Elland have built up a tradition for technical skill and engineering craftsmanship in the industry, and their name is inseparably associated with the highest standards of design and workmanship in all types of

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The **NEWLYN** provides hot water at all seasons of the year—water hot from the first drop.

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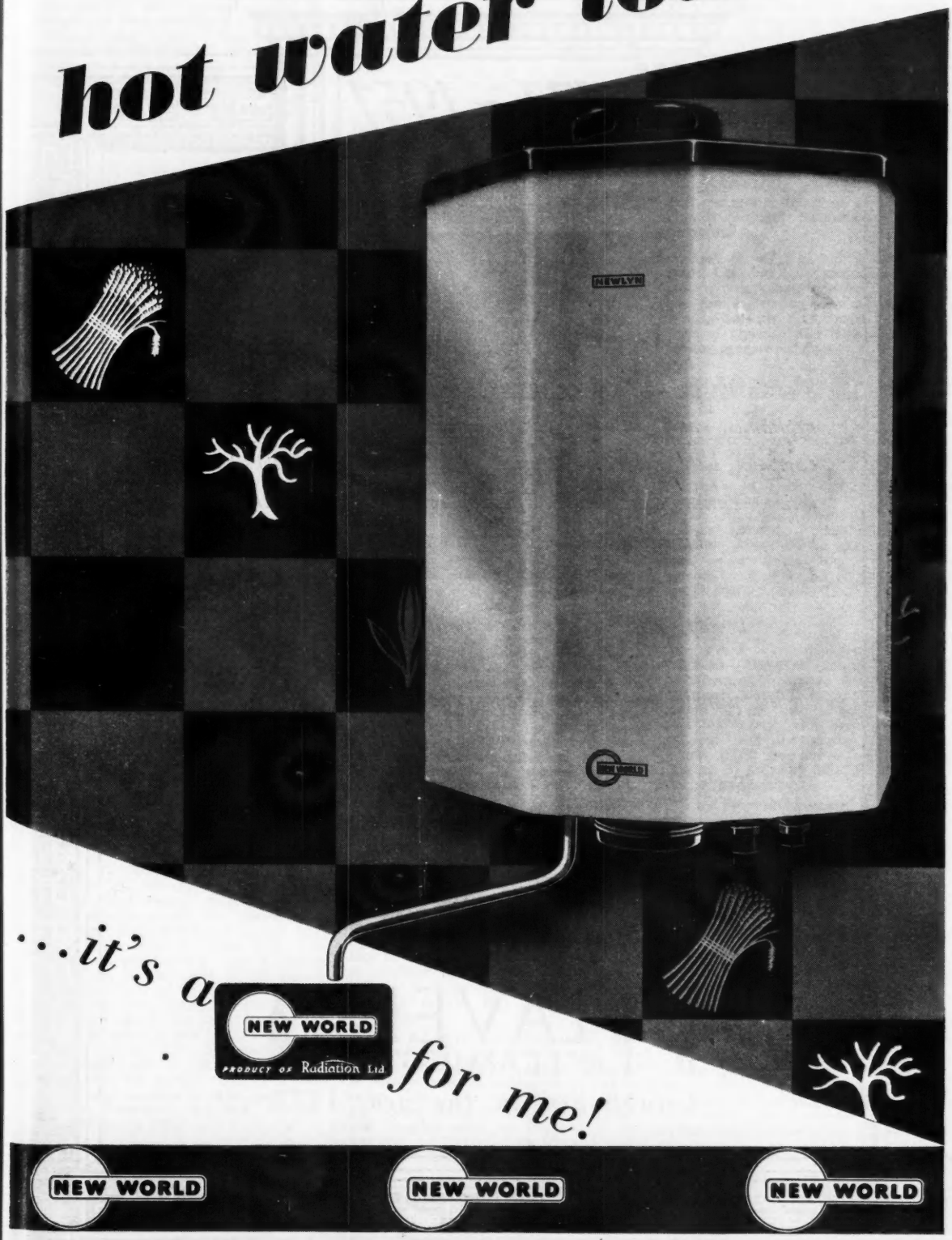
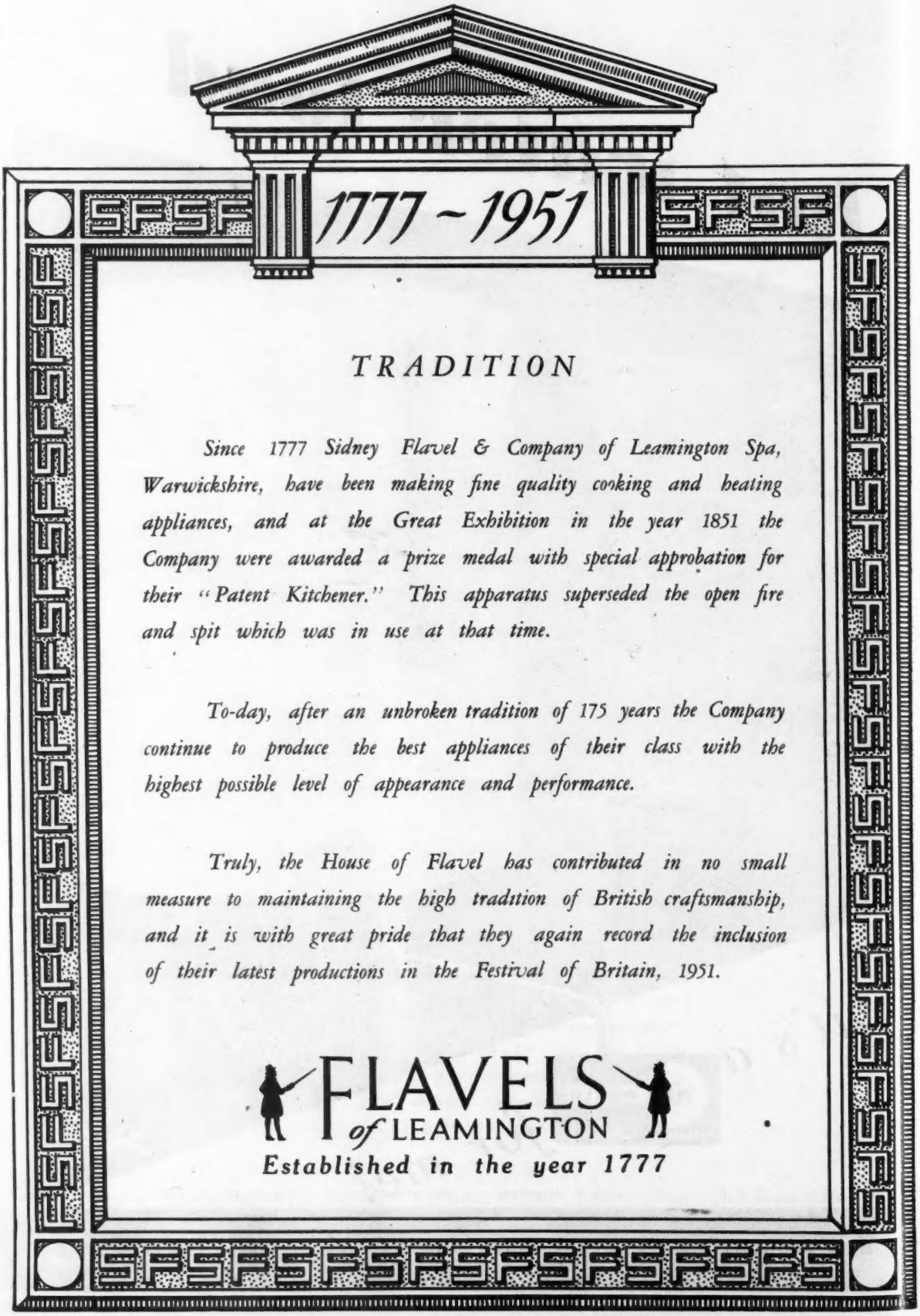
hot water load



...it's a NEW WORLD PRODUCT OF Radiation Ltd for me!

NEW WORLD NEW WORLD NEW WORLD


1777 - 1951
TRADITION
Since 1777 Sidney Flavel & Company of Leamington Spa, Warwickshire, have been making fine quality cooking and heating appliances, and at the Great Exhibition in the year 1851 the Company were awarded a prize medal with special approbation for their "Patent Kitchener." This apparatus superseded the open fire and spit which was in use at that time.
To-day, after an unbroken tradition of 175 years the Company continue to produce the best appliances of their class with the highest possible level of appearance and performance.
Truly, the House of Flavel has contributed in no small measure to maintaining the high tradition of British craftsmanship, and it is with great pride that they again record the inclusion of their latest productions in the Festival of Britain, 1951.
FLAVELS of LEAMINGTON
Established in the year 1777

holding 24 hats, coats and, if required, pairs of shoes. The unit is so constructed that it acts as a self-contained hot water circulating system. The gas rate is approximately 10 cu.ft. per hour.

The 'Supertherm' heater will be available for next heating season; the design has been developed over the last two-and-a-half years. The heater is rated at 35,000 B.Th.U. with a radiant efficiency in the region of 52% to 56%. The radiant elements are manufactured from thermal shock-proof refractory and have been proved very drastically. The burner is stainless steel and is of the pin-hole type.

Stand B, 501 and 400: **Radiation Group Sales, Ltd. (Solid Fuel Division),** exhibit domestic solid fuel combination grates, back-to-back ranges, convector grates and coke grates, whole house warming units, etc. One of the most interesting exhibits is the new 'Raymax' convector fire.

Stand Outdoor 1311 and 1210: **Ransomes, Sims & Jefferies, Ltd.,** exhibit a wide range of mowers, and their well-known Mb tractor with a variety of implements.

Stand C, 707: **The Rawlplug Co., Ltd.,** in addition to their well-known Rawlplugs, Rawlbolts, and other fixing devices, exhibit their Rawlplug 'Durium' drill which has revolutionsed hole boring in masonry. This is a rotary tool, absolutely silent in operation and can be used in a hand brace or electric drill. Sizes are from $\frac{3}{32}$ in. to 1 in. diam. to cover every size of Rawlplug and C.D.E. and G. Rawlbolt. Long durium drills are also being made for boring right through walls for conduits, cables, pipes, etc.

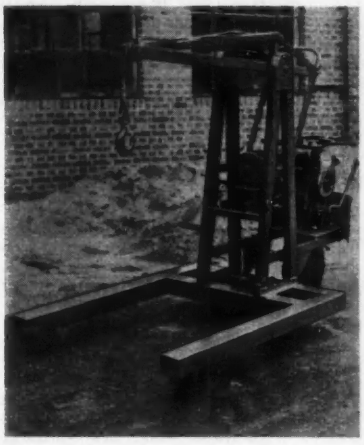
Stand C, 500: **The Rheostatic Co., Ltd.,** shows a comprehensive range of temperature control equipment, particularly for central heating installations, and this includes solenoid gas valves and gas safety devices, motorised valves for steam and hot water, and electric thermostats suitable for the control of room, duct, oven and liquid temperatures. Of special interest is a range of all-electric modulating mixing valves for low pressure hot water heating installations, and a range of straight through modulating mixing valves for steam or hot water.

Stand D, 706: **Rozalex, Ltd.,** exhibit the fruits of over 20 years' continuous research, and visitors will be able to obtain advice on the best methods of combating dermatitis in their own particular industries. Rozalex, Ltd., are now in a position to provide a barrier preparation against most of the known causative agents of dermatitis. Used in conjunction with proper medical supervision, Rozalex has achieved astonishing results in reducing the incidence of the disease. The 'Rex' dispenser, a device developed by the Company to ensure that the worker receives a controlled and uncontaminated supply of Rozalex whenever required, is also featured on the stand.

Stand D, 717 and 616: **Rubery, Owen & Co., Ltd.,** exhibit shelving, clothes lockers, office furniture, bolts, nuts, repetition parts, pressed machined components, agricultural machinery, petroleum gas cylinders, storage pallets, sheet metalwork, and steel storage equipment. Miners' lockers, racks, works and factory equipment are also shown.

Rubery, Owen (Kepston), Ltd., exhibit on the same stand 'Rockvee' finished bone pressed steel, copper brazed 'Vee' pulleys, and 'C' belt sections from 1¼ in. to 18 in. diameter and from one to six grooves.

Stand D, 129: **Saunders Valve Co., Ltd.,** display a range of valves representative of types, sizes and methods of operation of the complete series. Sectional models explain the simplicity, sureness of closure and the advantages of isolated mechanism, while working



A model 210 mobile crane manufactured by Wessex Industries, Ltd.

models demonstrate various methods of hand and power operation. Pressure operation is demonstrated by both piston and air motor models. The adaptability of these types to remote and automatic control is clearly seen and a complete display unit, with electrically-operated trip switches, indicates the possibilities of the system for process and similar plant.

Of the two forms of air motor-operated valves exhibited the pressure closing type is well known for its many applications in industry. This can now be studied alongside the pressure opening type. With the pressure opening type, a low operating pressure, admitted beneath an inverted mushroom, opens the valve against the O.H. springs. Upon relaxation of the head pressure the O.H. springs at once return the valve diaphragm to its seat from which it will be seen that in the event of pressure failure the valve is closed immediately.

The 'K' type diaphragm valve with straight-through full-bore passage permitting rodding-through for the removal of obstructions, continues to extend its scope. The range is now increased by the recent introduction of both larger and smaller sizes as follows: ½ in. screwed and flanged, 3 in. screwed, 5 in. and 8 in. flanged.

Stand D, 239: **Senior Economisers, Ltd.,** show a full-size cast-iron H-tube economiser set in brickwork at the base and fitted with an inlet ducting. This type is suitable for all industrial pressures up to 650 lb. per sq. in. The 'Senior' welded economiser, whose elements are steel tubes with cast-iron gilled sleeves shrunk on, and has been installed for various pressures ranging as high as 2,000 lb. per sq. in., is represented by a full-size example; and the 'Twintube' with similar elements, which is chiefly installed in central power stations, is represented by a section showing its construction. An animated picture shows on a screen a section through the H-tube economiser, indicating the flow of the water and the gases; and in the centre of the stand are quarter-scale models. The exhibit also includes a range of sections showing parts of the 'Twintube' and welded economisers.

Stand D, 407 and 306: **Spencer Bonecourt, Ltd.,** exhibit a scale model of the closed cycle air-turbine unit and waste heat boilers under construction for the West Midlands Gas Board. Illustrations of typical waste heat boiler installations are also shown.

Stand D, 543: **Sperryn and Company** exhibit an interesting display, representing the wide range of 'Spersom' gas fittings and controls. The 'Spersom' thermostatic controls, relay valves and flame failure devices are shown and two working models help to demonstrate the principles in a very simple and most effective manner. One of the models shows thermostatic control working in conjunction with a relay valve and the resultant effect on the gas flow can be seen on a visible flow meter. The second working model displays the now established 'Spersom' safe control pilot with the latest development which opens up an extremely important avenue in the control of flame failure in multiple burner type installations which have so far been difficult to protect. This latest development, named the 'Spersom' multi-safe control, is inserted into the circuit of the normal thermo-magnetic type of safety pilot and provides an efficient and inexpensive method of giving 100% protection against flame failures in the very wide field of multi-burner appliances.

The 'Spersom' patented spring loaded and self-lubricating main cocks, are displayed in sizes from ¼-3 in. and section models clearly demonstrate their advantages. In the smaller articles, there are gas stove cocks, flexible tube cocks and all the innumerable small brass fittings required in the gas industry.

Stand B, 717 and 626: **The Stanton Ironworks Co., Ltd.,** exhibit two of the largest spun iron pipes ever manufactured in Great Britain are 27 in. internal diameter and 18 ft. in length. Special castings, concrete-lined spun iron pipes, flexible joints for gas and water mains, a range of pig iron, and coloured aerial photographs of the works, are also shown. The Company shows two types of flexible joint for use with gas and water mains, including the well-known screwed-gland joint, which is demonstrated under air pressure. A sectioned 24 in. diameter bolted-gland joint represents the most recent of the Stanton flexible joints. For demonstration purposes, a 10 in. diameter screwed-gland flexible joint

and a 12 in. diameter bolted-gland flexible joint are available. On *Stand Outdoor B, 1326* the Company exhibit examples of their many concrete products.

Stand D, 313: **John G. Stein & Co., Ltd.,** have a stand which is more or less on similar lines to that of previous years and consists essentially of samples of bricks from their extensive range. Examples shown include silica bricks for open hearth purposes both of normal quality and Super Duty; firebricks ranging in alumina content from 32% to 44%; high alumina bricks of alumina content ranging from 50% to 90%, and including special bricks such as Stein 'Mullite,' 73% alumina, and Stein 'Sillimanite,' 62% alumina; and basic refractories including straight magnesite, chrome magnesite and chrome. Also on display are samples of various refractory cements for the jointing of bricks, and specimens of ramming and casting refractories for the patching of worn-out brickwork, making up special shapes on site, or casting *in situ*.

Stand D. 511/408 and Outdoor, 1333/1232: **Stewarts and Lloyds, Ltd.,** exhibit a section of a 72-in. sheathed and lined steel main into which five panels have been inserted, each containing a colour transparency illustrating stages in the manufacture, protection and laying of large diameter steel mains. The Company continues the practice of housing many exhibits in buildings erected outside. The principal (outdoor) stand, where a tubular steel building has been divided into ten bays, has a comprehensive range of products including steel tubes and fittings for the conveyance of steam, gas, air, water, and sewage, etc.; examples of protective linings and sheathings; tubular steel coils; hot and cold rolled steel strip; all country tubular goods including welding fittings; coal mining equipment; foundry and basic pig irons; iron and steel castings.

Stand D. 142: **Thomas & Bishop, Ltd.,** exhibit all their well-known range of products. These include 'Permac' jointing material which stand up to all temperatures and pressures of steam, water gas, etc.; 'Flexo' belt dressing; 'Flexo' tinning compound; 'Tebeon' waterproofing compound which prevents rust, corrosion, disintegration, etc.; 'Flexo' jointing paste which is a safe and clean sealing method for all screwed pipes and fittings; 'Flexo' refractory furnace cements; and 'Flexo' power brick which is a new scale eliminator for boilers and steam pipes.

Stand D, 301 and 200: **Richard Thomas & Baldwins, Ltd.,** exhibit flat rolled steel products in wide range, sheet steel, tinplate, stainless, galvanised, etc. *On Stand D, 142* the Company shows aluminium and its alloys in slabs, plate, sheets, etc.

Stand D, 719 and Outdoor, 1360: **Thos. W. Ward, Ltd.,** show, on their indoor stand, photographs of those aspects of the group's operations which cannot be exemplified by actual machines or equipment. The activities depicted include factory planning and installation work, industrial dismantling, shipbreaking, scrap handling, railway constructional work, erection of structural steel work, road making and the like. On the outdoor stand, the display consists of examples of the range of machinery and industrial plant marketed by the parent company together with unit displays showing the activities and products of their subsidiary companies. Exhibits will include sheet metal working machinery, wood working machinery, pumps and compressors, and various items of foundry plant.

Stand C, 300: **Wellington Tube Works, Ltd.,** exhibit steel tubes and fittings, fabricated pipe work, unit air heaters operating with gas, steam, or hot water, process plenum and convector heaters, heat exchangers, fabricated tubular steelwork, drop forgings, etc.

Stand D, 130: **Wessex Industries (Poole), Ltd.,** feature new power driven trucks which have been added to the existing range. Model 339 is an hydraulic tipping truck of 3 h.p., with a capacity of 35 cu.ft., and designed to carry 15-20 cwt. Model 210, a mobile crane, has a 1 h.p. motor for handling 10 cwt. loads. Model 340 is an hydraulically-operated lifting platform, 3 h.p. truck, to handle loads of 10 cwt., from ground level to 6 ft. The design of the main chassis, with open 'U' shaped frame allows the lifting forks to drop to ground level and the low build of its frame permits the truck to enter under low stillages and benches, lorrys, etc.

Stand D, 768: **William Whitehouse & Co., Ltd.,** exhibit their usual range of brass gas fittings, many patterns of which are improved by modern methods, including the 'Saflex' plug-in cocks, which now suit any portable household appliances, including wash boilers. Other specialities are hot pressed main cocks in all sizes up to 2 in.

Stand D, 719 and Outdoor 1360: **Widnes Foundry & Engineering Co., Ltd.,** exhibit cast and fabricated vessels and plant in cast irons, mild and stainless steels for the chemical, oil, and similar industries, and also special castings in high-duty irons, including 'Ni-Resist.'

Stand D, 505: **A. H. Wilkes & Company** exhibit gas burners and injectors, automatically proportioned mixers, industrial gas equipment including soldering stoves, brazing blowpipes, tinning baths, heat treatment, and all types of furnaces.

Stand B, 501 and 400: **Wilsons & Mathiesons, Ltd.,** feature domestic fuel combination grates, back to back ranges, oven-over-fire grates, heating stoves, convector grates and coke grates.

Stand C, 603: **Wolff Electric Tools, Ltd.,** exhibit, in addition, to their usual range of electric tools, two machines new to the British Industries Fair. These are the powerful 10 in. portable all ball-bearing electric saw, Model R.S.10 and the H.D.1 building and maintenance hammer kits. The display is completed by portable electric drills, screwdrivers, portable and stationary grinders, polishers, sanders, blowers, chisel mortisers, hammer kits, a range of engine reconditioning equipment including valve seat grinders and valve and engine servicing kits, valve refacers, 'Mobilectric' engine workshop, etc.

Stand B, 723 and 634: **The Yorkshire Coppers Works, Ltd.,** exhibits solid drawn tubes in copper, brass, cupronickel and other non-ferrous alloys; tubes for marine, electrical, railway, sugar plant, oil equipment, refrigeration, domestic water services, general engineering pipelines, etc.; 'Yorcalbro,' 'Yorcoron,' condenser, heat exchanger tubes; 'Yorcunic' sugar tubes; 'Yorkshire' patent capillary fittings for light gauge tubes for hot and cold water, gas, heating, waste and engineering pipelines.

North Thames Price Increase

The price of gas throughout the North Thames Gas Board areas is to be increased by three-halfpence a therm from July 2, because of increased costs, estimated at £2,398,000 for the present financial year. Mr. Michael Milne-Watson, Chairman of the Board, submitted a statement to the North Thames Gas Consultative Council last Thursday, giving, in terms of annual amounts, the estimated increases in cost as compared with the rates prevailing towards the end of 1950 that the Board expected to bear during the present financial year. These included:

Coal, £1,030,000, less increased revenue from coke and breeze £428,000, giving a balance of £602,000; gas oil, £152,000; freights, railway charges, and petrol, £338,000; wages, extension of sick pay scheme, etc., £771,000; increased cost of repairs and maintenance, £535,000.

The increase in price will bring the flat rate price to 17.6d. a therm.

Salisbury Long Service Awards

Fourteen men who have served the Salisbury gas undertaking for twenty-five years or over were the recipients of long service certificates recently. Mr. O. L. Guard (Chairman of the Southern Gas Board), presenting the awards, said he felt a special pride in doing so, since the men had completed the major part of their service before the gas company was nationalised and came under his command.

Two men, Mr. R. Judd and Mr. A. Kilford, had completed forty-nine years' service, and the remaining twelve had served for twenty-five years or more. They were Messrs. C. Berry, F. C. Bonner, W. D. Clements, D. Cutler, A. Farr, H. J. Hopkins, A. Ingleby, H. Loader, J. Patience, R. C. Paye, and W. T. Phillips.

Mr. Guard, who was thanked by the Western Divisional Manager (Mr. J. T. Hayes) was supported by Mrs. Lake (a member of the gas consultative council).

Institution of Gas Engineers—London and Southern Section

BENEVOLENT FUND APPEAL

AT a meeting of the London and Southern Section of the Institution of Gas Engineers held at the Institution offices on April 24, the Chairman (Mr. T. C. Battersby) made a special appeal on behalf of the Institution Benevolent Fund, the claims on which, he said, were exceeding the income.

During the last decade, stated Mr. Battersby, the membership of the Institution had increased from 1,780 to 2,754, but over the same period the percentage of members contributing to the Benevolent Fund had fallen. For the first five years of the period the average figure was 55.24%; for the second five years it was 53.76%; but for the year ended December 31, 1950, it had dropped to 49%. This was the first time in recent years that the figure had been below 50%, and it was felt that the situation called for action.

Not only were the demands on the Fund greater than ever—and it would be appreciated that the increased cost of living meant that grants must be on a larger scale than before—but the increased membership of the Institution must in time result in still further demands being made on the resources of the Fund.

It appeared that the proportion of new members contributing to the Fund was lower than that of the older members. One reason for the increased membership of the Institution was the undertaking given that all those who were members of District Associations prior to January 1, 1949, would be granted some form of membership of the Institution, and while he was appealing to all members of the London and Southern Section who did not subscribe to the Benevolent Fund to do so, Mr. Battersby said his remarks were particularly addressed to those who had recently been admitted to the Institution by virtue of their membership of the former Association.

He drew special attention to the advantages of signing a Deed of Covenant, since by so doing the Fund recovered from the Inland Revenue, out of income tax already paid by the subscriber, a sum proportional to the amount of the annual subscription—and the actual value of the subscription was thus greatly increased.

In the course of the formal business of the meeting, the Chairman welcomed a visitor from Australia—namely, Mr. W. W. Pettingell (Assistant General Manager of the Australian Gas Light Company, Sydney). He also reminded members of the Section's summer visit to Watford on Wednesday, July 4, and of the Spring general meeting on May 22.

A paper entitled 'Codes of Practice' was presented by Mr. A. G. Palmer, Works Regulations Officer to the North Thames Gas Board, which together with a report of the discussion which followed will be dealt with in a later issue of the *Journal*.

London Juniors Inspect Trunk Mains System

A visit of unusual interest, particularly to those on the distribution side, was paid by members of the London and Southern Junior Gas Association on Saturday, April 28. It took the form of an inspection of the Beckton trunk mains system, including the pumping plant at the Beckton works, the control room at Westminster, and a display of distribution equipment at the Monck Street depot.

The visitors travelled along the line of the trunk mains and inspected an automatically controlled district governor and made a short tour through one of the L.C.C. pipe subways.

After the inspection the members were entertained at tea at the kind invitation of the North Thames Gas Board.

International Gas Union

The Council of the International Gas Union held meetings on February 26, 27, and 28 in Milan, under the chairmanship of Mr. M. Brabant, President of the Union, assisted by Mr. R. H. Touwaide, Secretary General. The Institution of Gas Engineers was represented by Mr. F. M. Birks, C.B.E., Vice-President of the Union and President of the Institution, and by Dr. W. T. K. Braunholtz, Hon. Secretary General of the Union and Secretary of the Institution.

The Council decided to accept individual papers submitted by members of the national member organisations of the Union for presentation at the 5th International Gas Conference which is to be held in Brussels from June 16 to 22, 1952.

Industrial Demand in Wales

MR. ALFRED ROBENS, formerly Parliamentary Secretary to the Ministry of Fuel, speaking at a dinner given by the Industrial Association of Wales and Monmouthshire at Porthcawl on April 20, said industry in Wales was demanding an ever increasing supply of gas. In Wales as a whole, 20% of the total gas available in 1950, was sold to some 1,600 major industrial consumers. In some districts the increase in consumption by industry had been most marked. For example, in 1938-39, industrial consumption in the area of the Newport undertaking was 13 mill. cu.ft., whereas in 1949-50, this figure had risen to 590 mill. In the Port Talbot area industrial consumption increased during the same period from 7 mill. to 338 mill., while in the Pontypool area the increase was from 30 mill. cu.ft. in 1938-39, to 312 mill. in 1949-50.

To meet these increased demands and future demands there had been and must be considerable development in the use of gas produced both as a by-product of coke manufacture and from centralised modern gasworks installation.

Coke oven gas played a great part in the total make of gas. Indeed, by 1960 it was expected the gross yield of coke oven gas in South Wales would be between 90 and 100 mill. cu.ft. a day. In 1948 a Working Committee set up by the Minister of Fuel and Power reported on schemes for the distribution of coke oven gas and the integration of gas supplies in both the eastern and western industrial areas of South Wales. The Wales Gas Board had made considerable progress with these schemes. The eastern gas grid would provide for the distribution of coke oven gas from the new N.C.B. coke ovens now nearing completion at Nantgarw, new ovens to be erected by the N.C.B. at Cwm and from gasworks at Cardiff, Merthyr Tydvil, and Pontypool. This grid system would serve an area which included a total of 26 undertakings. Total cost of this gas grid which included 136 miles of main was about £1¼ mill.

Another grid link up provided for the supply of gas from the coke ovens at Margam to 14 undertakings in the area between Bridgend and Llanelly, and later consideration was to be given to extending the system to Kidwelly and Carmarthen to the west and Llandilo to the north. This meant a further 68 miles of main, 37 miles of which had already been laid. There were further extensions to existing undertakings, like the one at Llanelly, new plants like the one at Pontypool which was now operating, and the one to be erected at Wrexham. Experimental work was being carried out to try possible utilisation of the methane appearing underground at the point of Ayr Colliery on the Flintshire coast. If this experiment matured a considerable contribution to the gas supply of the coastal area would be possible. Several million pounds for development work was therefore planned in the immediate years.

There was another important fuel and power industry. He referred to the extensions and management of the oil refinery at Llandarcy. In 1947 the capacity of that refinery was 360,000 tons a year. By May, 1953, it would have increased to over 2 mill. tons a year. This was a great achievement. The credit was due to the oil company, but particularly to Mr. R. B. Southall, who had lived with this job day in and day out through these past years. This would not only provide employment for 2,000 workpeople at the refinery and more employment at the Swansea Docks where the oil would be brought in and stored, but it would be a great dollar saver because it would produce more lubricating oil. As we spent proportionately more dollars on lubricating oil than on any other petroleum product this would be a great national asset.

MODERN CARBONISATION

on a Small Gasworks

From a paper presented to the Northern Junior Gas Association on March 30, 1951

by

G. HAMILTON

Unit Manager, Cleveland.

and

C. WHITEHEAD

Divisional Chief Chemist, Middlesbrough Division, Northern Gas Board.

IT remains to be seen how many small units are so remote from large manufacturing centres as to render a bulk supply to them either impossible or uneconomic. Other writers have dealt with this matter in a much more comprehensive and better informed manner than I could ever hope to emulate. Some have advocated the installation of automatic C.W.G. plant on what would appear to be sound grounds, but in spite of higher capital costs I believe that there is a strong case for modern coal carbonisation. This belief must also have been held by the Ministry of Fuel and Power in 1947, for it was on the advice of the Ministry then that installation of intermittent vertical chamber ovens was first considered by the Cleveland Gas Company. It was at that time only too evident that new carbonising plant or a bulk supply of gas was urgently required. I should like to explain briefly how this situation had arisen.

Following the discovery of ironstone in this part of North Yorkshire, the Cleveland Gas Company was formed in 1875, and the Brotton Gas Light and Coke Co., Ltd., in 1877, to give gas supplies to the mineworkers who came to people a formerly rural area. Unfortunately for the companies, after the initial influx of workers had passed the total number of the population remained fairly constant. Many factors mitigated against any increase in gas output and, in 1912, the total sales of the two companies, then operating independently, amounted to 23 mill. cu.ft. per annum. In 1929 a bulk supply of gas was obtained by the Cleveland Gas Company from local coke ovens and this in turn led to this Company providing the Brotton Company with a bulk supply in 1932, but in November of that year the coke ovens closed down permanently. Thus in 1939 the Cleveland Company started the war years with an output of 28,500,000 cu.ft. per annum and substantially the same stop-ended horizontal retort house and ancillary plant as had been laid down in 1875. It emerged in 1946 with an output increased by 79% to 51 mill. cu.ft. per annum, and its plant, which had been augmented as far as possible, stretched beyond capacity. It was in view of this situation, coupled with the fact that a trading estate was pressing for a supply estimated at 60 mill. cu.ft. per annum, that the Ministry urged the Company to take suitable action. In May, 1948, an order was placed with W. J. Jenkins & Co., Ltd., of Retford, for the supply, erection, and putting to work of an intermittent vertical chamber oven plant of a nominal capacity of 500,000 cu.ft. per day. Jenkins are also responsible for the coke handling and grading plant which occupies the site of the old horizontal retort house.

Work on the foundations, which included Franki piling, started in April, 1949, and gas-making commenced July, 1950.

The installation, which is housed in a steel-framed brick-panelled building of modern functional style, consists of one bench of eight 2.3 ton chambers arranged in four settings of two, each setting being complete with large area recuperator and built-in step-grate producers. The whole layout is designed to permit of an extension at a later date.

Coal, coke, or breeze is received into a hopper at ground level and elevated by skip hoist to a dump hopper capable of holding two skips of material. The skip hoist is of the balanced automatic type, electrically driven and controlled from ground level by push buttons incorporating automatic safety switches.

A short cross-belt conveyor carries the material from the dump hopper to the main distributing conveyor, which is of the De Brouer drag-bar type, and thence to the 48 hour storage bunkers above the bench. Sliding door outlets are provided in the conveyor trough, operated by hand from the platform alongside, to direct the coal or coke into the respective compartments. The skip hoist and conveyor are rated at 25 tons of coal per hour. The bunkers are provided with five slide doors for feeding the chamber charging 'bus with coal and breeze and four for feeding coke to the producer charging 'bus; these doors have screw type opening gear and are operated by pendant chains from the bench top.

The suspended chamber charging 'bus, which is manually propelled, is designed to give a uniform depth of charge to each chamber without over or under filling. A separate breeze hopper incorporates a measuring compartment to ensure that a fixed quantity of breeze is charged into the chambers to act as a protective pad to the bottom doors and raise the coal into the carbonising area. The levers of the charging 'bus are interlocked and coal cannot be released into the chambers until the breeze pad has been dropped.

The chambers, which are constructed of 95% Consett silica, measure approximately 15 ft. 3 in. high by 9 ft. wide and are tapered 9½ in./12½ in. on the minor axis. The chamber heating flues are formed by continuous tongued and grooved key tiles, bonding adjacent chambers throughout the full width, thus forming an entirely monolithic structure which gives maximum strength to the oven walls to withstand the pressures exerted by strongly swelling coals. Expansion of the silica materials is provided for on the periphery of the silica work, thus avoiding any possibility of distortion and ensuring a long working life.

The chambers are heated by producer gas generated in the latest type of built-in step grate producers, one to each setting and provided with loose fittings to allow for expansion and growth. There is also one recuperator of the contra-flow type to each setting. A feature of the recuperator is that each secondary air flue is entirely independent from the inlet side to the combustion chamber, thus giving absolute and easy control of temperature. The settings are adequately insulated with insulating brick on bench top and side walls.

Gas from the chambers is taken off by offtakes fitted at both top and bottom of each chamber. The bottom gas offtake is of patented type, use being made of the bottom discharge doors for this purpose. The offtake is actually formed in the dome of the chamber door, which is virtually a semi-circular section pipe with a number of slots throughout the full length of the dome, and through which gas passes to the collecting mains. This offtake is a feature of the Jenkins plant and by its use pressure in the lower parts of the chamber is entirely eliminated, thus permitting the use of water sealed bottom doors. These have the advantage of providing a positive seal, thereby preventing the leakage of gas from, or air into, the chambers. A noteworthy feature of the bottom

doors is the hand-operated closing gear, made possible by counterbalancing the doors. The gas offtakes, hydraulic mains, valves, and collecting mains are continuously sprayed with hot ammoniacal liquor to prevent any possible accumulation of deposits, thereby ensuring trouble-free working.

A Bryan Donkin retort house governor capable of passing 600,000 cu.ft. per day, is situated at the hydraulic main platform level; and Bryan Donkin have also supplied the electric centrifugal liquor pump and a similar quenching water circulation pump. A steam driven pump by Joseph Evans does the double duty of standby liquor pump and tar disposal pump. Ammoniacal liquor at a temperature of 55°C. is circulated at a pressure of 40 lb./sq.in. and an adequate tar and liquor separating tank is provided adjacent to the pump house, the tar being run off periodically into a sump and thence pumped to the overhead tar tank on the adjacent railway sidings.

Coke Handling Plant

A manually propelled hot coke 'bus of sturdy construction and ample capacity receives the hot coke each time a chamber is discharged and conveys it to the quenching chamber. There it is quenched in 2½ min. by being sprayed with 500 gal. of water. It is then taken to the receiving hopper of the coke plant and tipped by a hydraulic ram incorporated in the bus.

The coke is raised by a 15 in. continuous bucket elevator to a Jenkins improved type of two-roll cutter arranged to reduce to 2 in. pieces, protected by a shear bolt coupling to safeguard the cutters in the event of foreign material entering the machine; by-pass chutes enable coke to be fed either direct to the screen or to a proposed overhead coke bogie, running on a platform on top of a Morris monorail. This latter will feed the boiler house bunkers and will also enable a storage heap about 15 ft. high to be built up, recovery from which will be effected by a skip suspended from the monorail and arranged to discharge into the receiving hopper. The screen is a Jenkins double-tray balanced reciprocating type designed to grade to 0-½ in., ½ in.-2 in., and over 2 in. A steel plate loading hopper is provided for the ½ in.-2 in. coke, and this is equipped with a bagging chute having a radial and door arranged at a height suitable for bag weighing on the lorry floor. An outlet with a rack and pinion operated door provides for ground storage as an alternative to bagging.

An overhead condensing main takes the gas from the I.V.C.O. plant by way of the water tube condenser and exhausters to the new ancillary plant. This consists of a W. W-D electro-detarrer and a Whessoe multi-stage static ammonia scrubber.

As this plant has been operating under our control for only seven months, and during that time has been carbonising different varieties of coal at different temperatures and carbonising periods, I consider that it is much too early to put forward any hard and fast figures as to results. We have, however, conducted certain tests under more or less stable conditions, which are submitted.

Carbonising Tests

An attempt was made during the 28-day test to maintain plant conditions as stable as possible in order that consistent results would be obtained. In the first instance six chambers were worked on a carbonising period of 18 hours, steam being admitted for the last four hours. Chambers had periodically to be left empty in order to reduce gas stocks, and owing to the formation of scurf it was found necessary on the eleventh day to reduce the carbonising period to 17½ hours, and leave the chambers open for 30 min. between discharging and re-charging.

Considerable difficulty was experienced in steaming down to a calorific value of 475 B.Th.U. per cu.ft. On the twenty-third day the steam period was increased to six hours.

The temperatures of the setting were maintained at the recommended temperatures for the carbonising period.

Temperatures and draughts were taken daily in the combustion flues, foul main, and at the recuperator. Average temperatures over the 28-day period were as follows:

Average temperatures, °C.	
Bottom heating flue	1,300
Top heating flue	1,000
Recuperator	940

It was found impossible to sample the producer gas made, owing to the construction and position of the producer gas offtake. Average analysis of the flue gases were as follows:

Outlet 'A' bed recuperators.					
No. 1 ...	CO_2	18.5	No. 2 ...	CO_2	18.3
	O_2	0.2		O_2	0.1
	CO	0.2		CO	0.1
Outlet 'B' bed recuperators.					
No. 1 ...	CO_2	18.3	No. 2 ...	CO_2	18.0
	O_2	0.1		O_2	0.1
	CO	0.1		CO	0.1
Outlet 'C' bed recuperators.					
No. 1 ...	CO_2	17.5	No. 2 ...	CO_2	17.4
	O_2	0.1		O_2	0.1
	CO	0.3		CO	0.3

The following average figures relate to steam to chambers:

Pressure, lb/sq.in.	31
Lb. of steam used	6,268
Steaming, %	17
Calorific value, B.Th.U./cu.ft.	485.5

It is the practice to clean each fire once every 24 hours and to fill the producer once every shift.

The coal carbonised was sampled three times per week, each sample being taken from the coal wagons in accordance with the standard method.

Type of Coal: Blackhall Washed Doubles.

Screening Test (Average):

	%
Above 2 in. B.S. square mesh	nil
1½ in. to 2 in. B.S. square mesh	23
½ in. to 1½ in. B.S. square mesh	65
⅜ in to ½ in. B.S. square mesh	10
Below ⅜ in. B.S. square mesh	2
	100

Proximate Analysis (Average):

	%
Moisture	2.91
Ash	5.20
Volatile matter	34.68
Fixed carbon	57.21
	100.00

Calorific value (by bomb calorimeter) 14,530 B.Th.U./lb. as received.

Calorific value (by bomb calorimeter) 14,970 B.Th.U./lb. (dry).

Swelling index, 6½.

Weight of Coal per Charge: 2.15 tons (as received).
2.09 tons (dry).

The coal carbonised per day was measured by levelling the coal storage bunkers daily and weighing the amount of coal elevated. This weight being checked against the colliery weights.

The gas was metered after purification by means of a Connersville meter and records of meter temperatures and pressures were taken.

The calorific value of the gas was recorded by a Sigma recording calorimeter which was checked against the standard Boys calorimeter twice per day.

The following were the average figures:

Make of gas per ton of coal, 1,000 cu.ft., ...	17,010
Make of gas per ton of coal, therms	82.58
Calorific value of gas, B.Th.U./cu.ft.	485.5

The coke made was of a dense nature and the quantity of breeze made was negligible; in fact when the plant first operated breeze for the breeze pads had to be imported. The

size of the coke made is given in the following table. These results are the average of 12 tests—*i.e.*, three tests per week, a sample of 2 cwt. being taken:

Screening Test (Average).

	%
Above 3 in. B.S. square mesh	68
2 in. to 3 in. B.S. square mesh	26
1¼ in. to 2 in. B.S. square mesh	6
Below 1¼ in. B.S. square mesh	nil
	100

Calorific value of coke ... ... 12,350 B.Th.U./lb. (dry) (by bomb calorimeter).

The ashes and clinker from the producers were weighed each day and three times per week a sample was taken for analysis:

	Air Dried. %	Wet. %
Air dried moisture	—	17.00
Inherent moisture	2.12	1.76
Ash	60.30	50.05
Volatile matter	0.56	0.46
Fixed carbon	37.02	30.73
	100.00	100.00

Calculated calorific value ... ... 6,500 B.Th.U./lb. (dry)
Weight of clinker, etc., per 24 hr. = 12.57 cwt. (wet)
(three producers) = 10.21 cwt. (dry)

Carbonising Costs

Costs based on:

Coal at works siding ...	62s. 8d. per ton
Coke at works yard ...	68s. 11d. per ton
Tar at works	60s. per ton
Labour:	
Stokers	£7 11s. 4d. per week
Yardmen	£4 19s. per week
Tar yield	11.00 gal. per ton
Fuel for steam	7 lb. of steam per lb. of coke

Debit:

	£ s d.	£ s. d.
463 tons of coal		1,450 14 8
Seven stokers		39 12 0
Two yardmen for coal and coke handling, cleaning, etc. ...		211 17 4
Power and lighting		20 0 0
Coke for steam raising (11¼ tons) (calculated on steam to chambers)		38 15 4
		£1,760 19 4

Credit:

Coke total ex retort house (274)...	944 3 2	
Tar (23 tons)	69 0 0	1,013 3 2
Therefore cost of manufacture ...		... £747 16 2

and cost per therm (38,233 therms) = 4.69d.

Owing to the high demand for coke the consumers were taking wet coke during this period. If the coke had been allowed to air-dry the weight manufactured would have been 240 tons.

Therefore the cost per therm would be increased to 5.43d.

Fuel Expenditure Index

Gas made at S.T.P. ...	7,874,900 cu.ft.
Calorific value	485.5 B.Th.U./cu.ft.
Coke for sale (dry) ...	233.8 tons
Calorific value (dry) ...	12,350 B.Th.U./lb.
Coal carbonised (as received)	463 tons
Calorific value (as received)	14,530 B.Th.U./lb.

Owing to the method of tar storage it was impossible to measure the tar made per day, but over a long period the practical figure of 11 gal. per ton of coal carbonised has been found to be satisfactory.

Tar made	5,093 gal.
Calorific value (assumed) ...	180,000 B.Th.U./gal.

Overall Fuel Expenditure Index:

Overall Thermal Efficiency:

$$= \frac{\text{(Gas made} \times \text{C.V.)} + \text{(coke for sale} \times \text{C.V.)} + \text{(tar made} \times \text{C.V.)}}{\text{(Coal carbonised} \times \text{C.V.)}}$$

$$= \frac{(7{,}874{,}900 \times 485.5) + (233.8 \times 2{,}240 \times 12{,}350) + (5{,}093 \times 180{,}000)}{463 \times 2{,}240 \times 14{,}530)}$$

$$= \frac{11{,}207{,}847{,}150}{15{,}069{,}353{,}600} = 0.744$$

Thermal efficiency = 74.4%

Therefore Overall Fuel Expenditure Index = 25.6

Observations

Before attempting to summarise the results of this carbonising test I wish to stress that the plan has been operating under our control for only seven months. It is much too early yet to form concrete opinions, the operating and technical staff have to gain experience in this method of carbonisation, and the carbonising temperatures necessary for different types of coal must yet be determined. Much work of an experimental nature must yet be carried out and these results should be considered to be preliminary.

We have previously carbonised Fishburn and Dean and Chapter coal and carbonisation of the Blackhall coal used during the test was only commenced a few days prior to the test.

1. Great difficulty was experienced in steaming down to a calorific value of 475 B.Th.U. per cu.ft. while maintaining optimum output. The coke did not appear to be reactive to steam at the temperatures maintained in the settings. It is now proposed to work the settings at 1,250° to 1,360°C. at the bottom heating flue to ascertain the effect on the water gas reaction.
2. The thermal yield is very satisfactory and can be maintained under normal working conditions.
3. During the period of the test the plant was not working at full capacity owing to the limited demand for gas. This resulted in the occasional dropping of chambers and had an adverse effect upon the 'fuel to producers' figure. It is intended to carry out further tests when a section of the plant is working on full load.
4. W. J. Jenkins & Co., Ltd., have specified the capacity of the chambers (2.3 tons) on the basis of a coal bulk density of 50 lb. per cu.ft. whereas the Blackhall Washed Doubles had a bulk density of 46 lb. per cu.ft. and the chambers a capacity of 2.15 tons.
5. The actual output of the plant based on the test figures is 390,720 cu.ft. per day (based on an 18 hr. schedule) at 485.5 B.Th.U./cu.ft.

   Jenkins nominal capacity was 500,000 cu.ft. per day of 460 B.Th.U. per cu.ft. of gas; since this figure was specified the declared C.V. of the unit has been increased to 475 B.Th.U. per cu.ft. and so this capacity is reduced to 484,200 cu.ft. per day.

   Since the volumetric output per chamber from the plant is generally constant with varying carbonising periods, the length of carbonising period necesary to ensure the specified output can be calculated. On the test figures this period works out to 14½ hr.

   Since the completion of these tests the total carbonising period has been reduced to 14½ hr. with 4 hr. steaming—*i.e.*, reducing the carbonising period by 1 hr., and the steaming period by 2 hr. It is regretted that these results are not yet available.
6. Although the ash and clinker from the producers contain 37.58% combustible matter, the total weight of good fuel wasted is negligible, since most of the carbon is at the centres of semi-fused masses of clinker and could not be used as a fuel.

(*Continued on page 315*)

The RAYMOND Gas Cooker . . . for the few

WHERE DO WE STAND?

Statement of Policy by the Chairman, General Gas Appliances Ltd.

THE INTRODUCTION of the Raymond Gas Cooker, which we describe as the most luxurious on the market and with comparable candour as the most expensive, gives me the opportunity I have long sought to make a statement about our Company's manufacturing and marketing policy.

General Gas Appliances Ltd. was founded in 1920, and became a corporate member of Allied Ironfounders Ltd. in 1936, when that company decided to expand their production of gas cookers. Thus General Gas Appliances Ltd. became heir to an industrial tradition unbroken since the reign of Queen Anne, when in 1709 a Quaker, Abraham Darby, established at Coalbrookdale the first real iron foundry as we know it today. Two hundred and forty-two years later Allied Ironfounders Ltd. are still making the best contemporary goods by the best contemporary methods.

For many years we have manufactured gas cookers comparable in performance, appearance and price with those made by the leaders in our industry. In terms of quantitative production we have never, of course, competed with those giants, but during the last few years we have, within our limited productive capacity, and with our limited supply of material, made our biggest possible contribution.

Since the war, we in General Gas Appliances Ltd. have sought to take the lead in certain specialised fields within the gas industry. We have tackled problems which for too long have gone unanswered. And in successfully solving these problems we believe that we have made a real contribution to the industry and to the community.

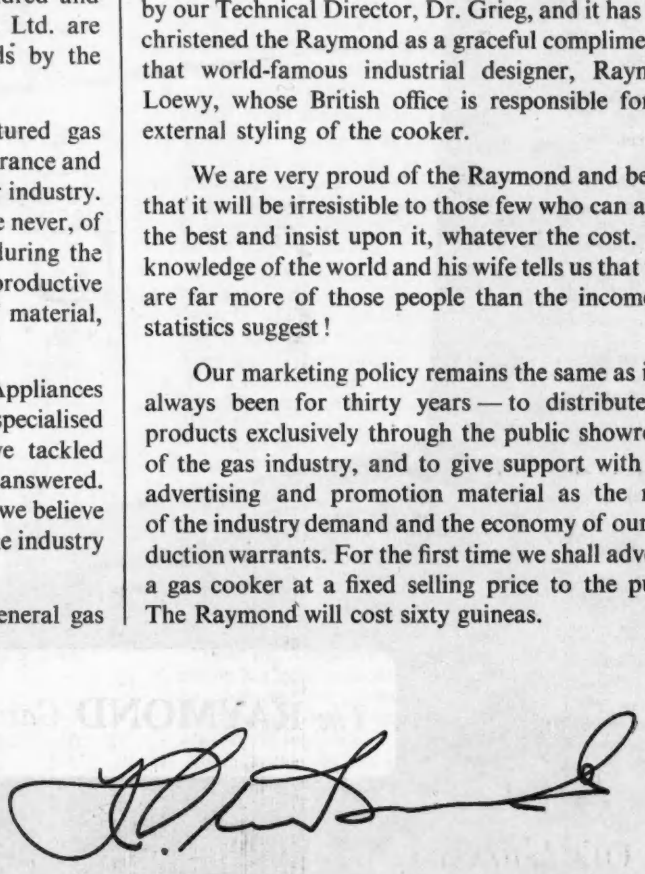
In 1949 we introduced the Junior General gas cooker. Until then the gas industry had nothing to offer the public comparable with the " baby " electric cooker. The response of the industry and of the public was immediate and, in terms of our productive capacity, so overwhelming that very soon we had to cancel all our Junior General advertising. The demand is still increasing beyond our capacity to supply without complete disruption of our standard cooker production.

There, evidently, was a national need We have done our best to meet it.

In 1951 we introduce the Raymond Gas Cooker. If the Junior General was for the " poor relations ", the Raymond is for their rich uncle. It was devised by our Technical Director, Dr. Grieg, and it has been christened the Raymond as a graceful compliment to that world-famous industrial designer, Raymond Loewy, whose British office is responsible for the external styling of the cooker.

We are very proud of the Raymond and believe that it will be irresistible to those few who can afford the best and insist upon it, whatever the cost. Our knowledge of the world and his wife tells us that there are far more of those people than the income tax statistics suggest!

Our marketing policy remains the same as it has always been for thirty years — to distribute our products exclusively through the public showrooms of the gas industry, and to give support with such advertising and promotion material as the needs of the industry demand and the economy of our production warrants. For the first time we shall advertise a gas cooker at a fixed selling price to the public. The Raymond will cost sixty guineas.



H. C. WILSON BENNETTS, *CHAIRMAN GENERAL GAS APPLIANCES LTD.*

THE RAYMOND

most luxurious and most expensive of gas cookers is unique for these 21 outstanding features

- ★ Its most attractive appearance
- ★ The concealed plate rack
- ★ Its larger hotplate
- ★ Interchangeable hotplate parts
- ★ All taps are the safety type
- ★ All taps turn with exceptional smoothness for a new degree of flame control
- ★ All burners light automatically
- ★ It has a safety device for automatic oven lighting
- ★ The easily-accessible standard-type battery for lighting
- ★ The enclosed grill
- ★ Its larger grill
- ★ Its larger oven
- ★ Thermostatic control of oven heat
- ★ The grill pan can be used in the oven
- ★ The oven shelves can't tip or pull out accidentally
- ★ All oven linings are removable for easy cleaning
- ★ The cooker fits flush against the wall
- ★ Oven ventilation is in front of the splash plate
- ★ It has a stainless vitreous-enamel finish throughout
- ★ All metal parts are stainless and rust-proof
- ★ The Raymond is the only gas cooker with all cooking surfaces enamelled swan-white

List Price
60 Guineas

Test after test proves that the cooking prowess of the Raymond is unsurpassed !

WHAT THE RAYMOND IS LIKE . . .

Styled by Raymond Loewy, world-famous industrial designer

Built by General Gas Appliances Ltd., long known for good cookers

AT EVERY STAGE in creating the Raymond, General Gas Appliances Ltd. have worked with the world-famous industrial designer, Raymond Loewy, in whose honour it has been named.

The result of this collaboration is a gas cooker of an elegance and efficiency never before offered to Britain's homes. The Raymond is the most beautiful . . . the most automatic and labour-saving . . . the easiest to clean . . . supreme also in cooking performance . . . among all gas cookers.

Some of its many merits that women especially know how to appreciate are illustrated here.

INTERCHANGEABLE HOTPLATE PARTS . . .

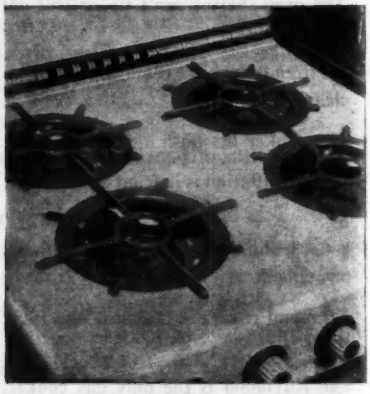
They all come out easily and can be washed clean in the gentlest soap suds; no scratchy cleansers are ever needed and so the glass-smooth surface of the Raymond need never be marred during cleaning. Even the splash plate at the back can be removed for a thorough wash. But a wipe with a damp cloth is all that the top and its parts usually require.

CONCEALED PLATE RACK AND LARGER HOTPLATE

The sturdy plate rack readily slips up and out into position from behind the splash plate — slips back again out of sight when not needed. For greater convenience, the Raymond has a larger hotplate. Not a great deal larger — but enough to make a real difference, enough to allow the Raymond to have a larger grill and oven.

BIGGER OVEN WITH NON-TIP SAFETY-STOP SHELVES

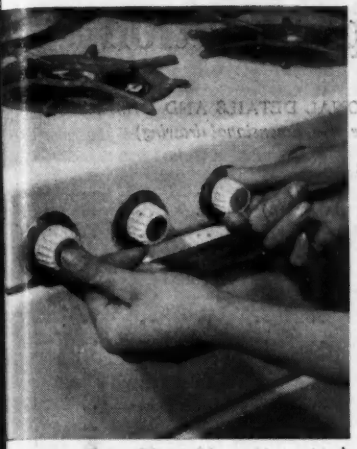
The capacious oven is big enough to cook for the largest family. It is thermostatically controlled and its temperature is set at the oven tap itself — the tap at the extreme right of that neat row. A safety device ensures that the oven burners will light only when the oven door is open. The oven shelves cannot tilt or come out accidentally.



NO SPOILED WALL . . . NO CLEANING BEHIND THIS COOKER

The oven flue comes out in front of the splash plate — see those openings at the back of the hotplate. Because of this feature, the Raymond gas cooker stands flush against the wall. So there is no back-breaking struggle to clean the floor and the wall behind it. The Raymond saves floor space in this way—important in small, modern kitchens.

The Raymond cooker has been chosen by the Festival of Britain authorities as an outstanding example of contemporary British invention, craftsmanship and design.



Complete Automatic Lighting

even in the oven

Just press and turn the burner tap, then press the end tap on the left. That's all — whether you wish to light a hotplate burner, the grill or the oven. These taps turn so smoothly that any size of flame is possible, from a mere glimmer for simmering, to a high flame for fast boiling. They are all safety taps — you must press them in to turn them on. A safety device on the oven door lets the oven light only when the door is open.

OVEN SIDES, BACK, TOP AND BOTTOM COME OUT

No more struggles on bended knees to clean the far corners of this oven! Take the pieces out and wash them in soapy water. All the parts are finished in vitreous enamel with its stainless high porcelain-gloss — so dirt-resisting that it glistens like new in a moment. The Raymond is indeed the most immaculate of cookers.

REMOVABLE GRILL CHAMBER

Finished throughout in vitreous enamel, it is easily wiped or washed clean. All corners are rounded so no grease or dirt is trapped. With the grill chamber removed, the battery for the automatic lighter can be easily reached, slipped out and a new one as easily put in when needed. A battery lasts for months; it is a standard type, obtainable in most shops.

BIGGER AND BETTER GRILL

he Raymond grill is half as large again as at of any other gas cooker, big enough to four slices of toast all at once — and *autifully*—for the carefully planned burner sures all-over, even grilling. The grill amber is completely enclosed when not use. After grilling, the compartment can used for keeping food warm. The illing pan is designed for use in the oven a roasting tin if the housewife wishes.

The Raymond Gas Cooker Specification

THE CONSTRUCTION is of sheet steel and cast-iron in vitreous-enamel finish.

The hotplate contains a high-speed grill with heat-resisting frets and four interchangeable boiling burners. The hotplate inserts are also interchangeable and easily removed for cleaning.

The oven has two burners and is thermostatically controlled; the oven linings (sides, back, top and base) are removable for easy cleaning. With the exception of the top, which is black, the linings are finished in white acid-resisting enamel. The grid runners are embossed on the removable sides, the oven grids are self-locking and non-tilting so that they can be drawn forward whilst still retaining a horizontal position.

The splash plate is clipped to fixed plate rack standards and is easily removed. The plate rack can be concealed behind the splash plate when not in use.

The grill chamber has embossed runners to carry the grill pan which also fits on the oven runners for use as a meat tin. The grill chamber is finished in white acid-resisting enamel and can be removed for cleaning.

Automatic ignition is provided for all burners including oven. The ignition is battery operated. A safety device is also fitted which prevents ignition in oven when door is closed.

CONSTRUCTIONAL DETAILS AND DIMENSIONS
(see also dimensional drawing)

Overall Dimensions

width	23"
height (including plate rack)	53"
height (to hotplate)	36"
depth	22½"

Hotplate

width	23"
depth	18¾"

Oven

width	17½"
height	16½"
depth	15½"

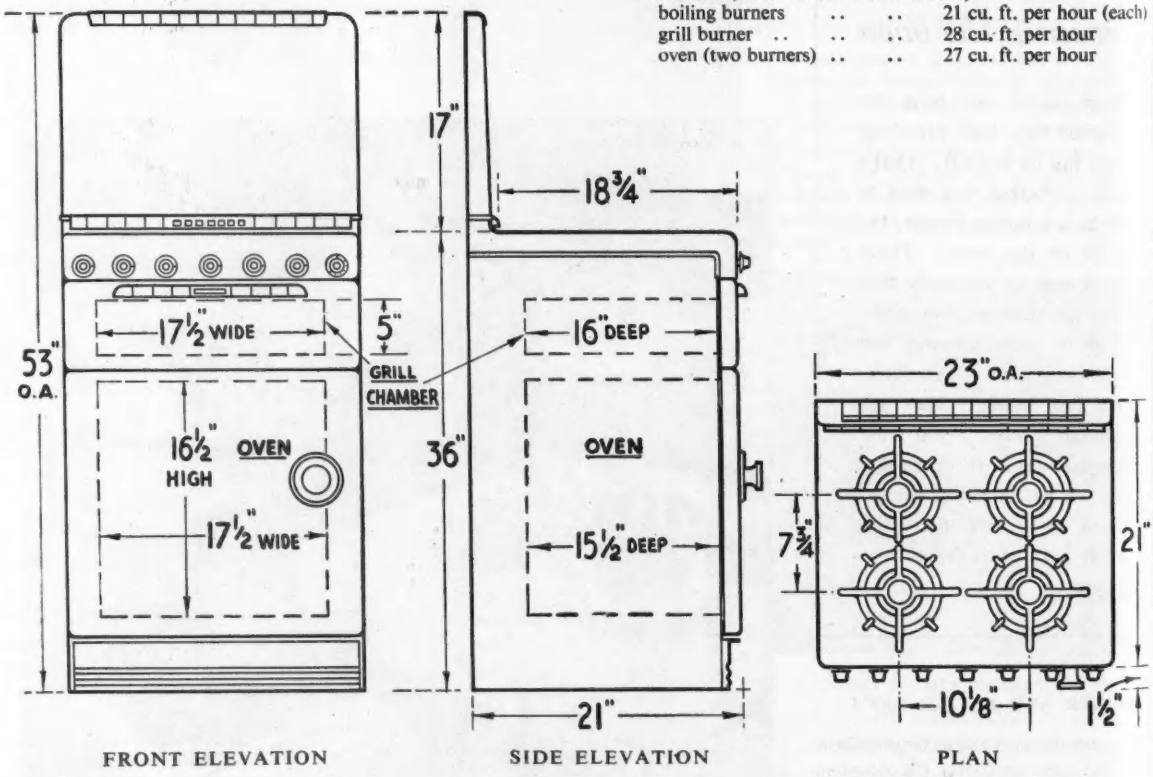
Grill Chamber

width	17½"
height	5"
depth	16"

Gas Connection ½" B.S.P. (Female) height from ground .. 32"

Gas Rates (*based on C.V. 500 B.Th.U.s*)

boiling burners	21 cu. ft. per hour (each)
grill burner	28 cu. ft. per hour
oven (two burners)	27 cu. ft. per hour



FRONT ELEVATION SIDE ELEVATION PLAN

Your inquiries about the Raymond Gas Cooker are invited

GENERAL GAS APPLIANCES LTD.

Proprietors: Allied Ironfounders Ltd.

CORPORATION ROAD, AUDENSHAW, MANCHESTER

(*Continued from p. 308.*)

The practice of cleaning the producers once every 24 hr. was established by the contractors after considerable experiment and after finding that the fuel lost due to ash removal was excessive when each fire was cleaned three times per day. Until constructional alterations are made so as to enable producer gas samples to be taken, we are unable to determine whether more frequent cleaning of fires should be adopted, but lack of variation in the temperatures in the combustion chambers suggests that cleaning once daily is adequate.

The greatest care was exercised in carrying out the confirmatory test on coke yield and coke fed to producers. This test covering a period of 24 hr. was carried out as follows:

All the coke discharged from the chambers was loaded into lorries and transported to Middlesbrough where it was weighed, sampled, and tested. This gave a positive figure for the coke made.

The weighed and tested coke was sent back to the gasworks at Skinningrove and all was loaded into the producer hoppers which had been emptied beforehand. This weighed coke was then fed to the producers until it was exhausted.

The coke made per ton of coal carbonised on the dry basis was 14.25 cwt., whereas the coke made per ton on the 28 days test on the dry basis was 15.19 cwt. Neither of these figures corresponds with the yield calculated from the analysis of the coal carbonised (calculated yield = 13 cwt. per ton on the dry basis). No explanation can be advanced for this difference at this stage, but the Coal Board analysis of Blackhall Washed Doubles compares closely with the analysis given in this paper.

The coke fed to producers was calculated on the assumption that one-third was fed to the stand-by producer. This is not strictly true since the dampers were checked back. Consequently, the calculated figure of 18.7% wet basis and 16.35% dry basis will err on the low side.

The carrying out of the test was considerably affected by the fact that the central laboratory was situated 17 miles from the Cleveland plant and so all apparatus and samples had to be transported.

DISCUSSION

Mr. G. E. Anderson (Newcastle) expressed the opinion that if it were possible to obtain similar papers relating to works using small stop-ended retorts on the one hand and larger works using a similar type of carbonising plant on the other, the comparison in results would be most interesting. Mr. Anderson referred to the responsibility of a small works manager and pointed out the difficulties in giving adequate technical attention to a modern carbonising plant owing to the very large variety of duties which a small works manager was called upon to perform. He discussed the conditions of overloading of a works, which conditions were prevalent in the gas industry to-day, stating that the cost of manufacture was affected most undesirably by the necessity to produce volumes of gas beyond the capacity of works plant and to endeavour in every way to meet the demands of consumers. He looked with envy on this plant of Mr. Hamilton's which at the present time was only being operated at a 'cruising' speed. He asked whether relative costs were available when working under the old conditions with stop-ended retorts as compared with the new I.V.C.O. plant, having regard to capital charges and maintenance.

Mr. G. Hamilton, in reply, stated that it was not possible to compare the old plant and the new because the old plant was operated with a very heavy overload.

Mr. Stanley Jones (Middlesbrough) also replied to some of Mr. Anderson's comments, and stated that it was the intention, as soon as certain mainlaying projects were completed, to operate the Cleveland plant on full load and to use it as a base load plant feeding into that end of the division's area of supply. It would be interesting in years to come to see what the life and maintenance charges on this plant turned out to be when operated for base load purposes only. Mr. Jones also underlined some of the points which had been presented by the authors. He gave reasons for the selection of three coke sizes only, instead of the usual four—*i.e.*, 0-½ in.; ½-2 in.; and over 2 in.; stating that on a unit of this comparatively small size it had not been considered desirable to split the comparative small nut fraction of ½ in. to 2 in. into the usual ranges of ½ in. to 1¼ in. and 1¼ in. to 2 in.

Mr. Jones also referred specifically to the great care which was taken in measuring the quantity of coke fed to producers; in so far as it was possible to safeguard against errors in weighing and sampling every care had been taken. It was admitted that the fuel fed to producers appeared to be abnormally high; and though no explanation for this high figure was offered at this stage, it was intended to carry out further exhaustive tests and investigations of operational procedure in order to determine the cause of this high figure and reduce it to reasonable limits.

Mr. J. E. McManus (Newcastle) referred to labour used on the plant and enquired as to the duties performed by the men concerned.

Mr. Hamilton, in reply, stated that on a small works such as the one at Cleveland, the stokers were called upon to perform many and varied duties, and that these included firing and attention to boilers, pumping of syphons, reading of meters, etc., in addition to their duties as stokers. When the plant was in full operation the labour requirements would be the same as they were now when the plant was working only at 60% of full load.

Mr. Jones pointed out that regardless of duties it was not considered wise to leave one man alone on the works outside the normal working hours, and that it was necessary to carry two men per shift, if only for reasons of safety.

Mr. Milner (Assistant Engineer to the Sunderland division), referred to the non-steaming characteristics of the coal carbonised, and advanced the theory that it was due to after-contraction of the coke which allowed the steam to short circuit by passing between the charge and retort walls.

Mr. Whitehead, in reply, agreed that it had been found almost impossible to steam down to the standard C.V., and stated that the coal had a swelling index of 6½, which, though highly swelling, could not be termed excessive.

Mr. J. E. Dixon (Newcastle) stated that in his experience a Durham coal having a swelling index of more than 6 was particularly non-reactive to steam.

Mr. G. W. Perks (Stockton) referred to the alternative available of downward steaming as compared to the practice apparently adopted of upward steaming, and enquired as to whether any results were available with this method and whether this might have an effect upon the reactivity of the coke.

Mr. Hamilton stated that as yet downward steaming had not been tried.

Mr. Jones pointed out that one factor against downward steaming was that there would be a tendency to carry tarry deposits down and deposit them in the breeze pad, thus setting up pressure within the retort; also, the zoning of heats—top heats 1,000°C. and bottom heats 1,300°C.—was not conducive to carrying out a satisfactory water gas reaction.

Mr. T. R. Wicks (Workington) proposed a vote of thanks to the authors for their paper.

Steaming Practice

Mr. R. W. Lush (W. J. Jenkins & Co., Ltd.) writes:—I would like to clarify that upward and downward steaming are normally used in conjunction with each other, the steaming period being commenced with the downward cycle and completed with the upward flow, the ratio of the respective periods being determined by the ambient conditions of the flue temperatures and dilution required, etc. Top steaming may be employed to advantage on the following occasions. Firstly, if the steaming period is very long or heavy, as may be the case when a gas output of low calorific value is called for, then in employing the two methods as described, the undercooling of the lower sections of the charge and chambers is avoided. Secondly, the periodic use of downward steaming may be regulated to minimise the formation of scurf in the upper regions of the chamber, and thus avoid the disadvantages incurred in standing-off chambers for scurfing. We do not claim that any undue advantages are gained in the general use of these two methods in respect of efficiency, apart from those derived under the previously mentioned conditions. In regard to the later question of downward steaming saturating the breeze pad of the chamber, this condition is not found to arise since downward steaming is followed by the upward flow and any condensate formed in contact with the bottom door dome casting drains into the door seal and away.

DECENTRALISATION: Its Advantages and Obligations

By ALEXANDER TRAN,
Divisional General Manager,
Northern Division, Southern Gas Board.

In his inaugural address as Chairman of the Midland Section of the Institution of Gas Engineers at Birmingham on April 6 the author described the large measure of decentralisation which characterises the set up in the area of the Southern Gas Board, more particularly in the Northern Division, of which Oxford is the principal undertaking. He also referred to the experiments in budgetary control and standard costs now being made in the Bournemouth group and added with native Scottish caution, 'they have been successfully applied in other industries and it remains to be seen whether they can be successfully applied in gas.'

SINCE nationalisation, the most striking changes in the gas industry have been those in the sphere of organisation. The gas industry is the most decentralised of all the nationalised industries. It is in fact the only nationalised industry in which no sort of responsibility either for production or distribution rests with a centralised body, the whole responsibility having been vested in the 12 area boards. There is, moreover, a swing in industry generally towards decentralisation, and there is evidence that some of the largest industrial organisations have recently been engaged on the task of decentralising themselves in order to cope with their ever growing size, because they have learned that over-centralisation can impede quick decision and resolute action. The Ford Motor Company of America is a case in point. In 1946 the Ford Company was one of the most highly centralised of the large American companies, but today it is a federation of autonomous divisional organisations.

Topographical Considerations

The Southern Gas Board has deliberately chosen to be decentralised. No doubt the topography of the area has had something to do with this decision. In the first place, the area lends itself to division into four parts because of its shape, and because of the geographical location of its principal towns, and of the various existing high-pressure systems.

On the whole, our lot has fallen in pleasant places. Our Western Division includes the seaside towns of Bournemouth and Weymouth and a large tract of the New Forest just inland; the Eastern Division includes the seaports of Southampton and Portsmouth, and the Isle of Wight; the Central Division extends from the South Downs through Hampshire to the middle reaches of the Thames up to Wallingford; and the Northern Division takes in most of the upper navigable waters of the Thames and the area between the Cotswolds and the Chiltern Hills.

But topographical considerations apart, there are sound practical advantages in decentralised control. Firstly, the utmost incentive is given to management at all levels to discharge their duties not only in a way which will satisfy those who have supervision over them, but in a way which will satisfy themselves. There is no better way of getting affairs conducted responsibly than to make people feel responsible for conducting them. Nothing can take the place of the man on the spot, but he is useless unless he can act on the spot and know that his decisions will be upheld. He is the man to whom we have to look to produce and distribute gas and by-products economically; to get the best service from his workpeople; and above all to maintain good relations with his consumers. But we shall look in vain unless he is given the necessary freedom and authority.

Secondly, there is a great economy in headquarters and divisional staffs. In a very real sense the staffs both at area and divisional headquarters are, in the short run, an extra load which the industry has to bear. No doubt, in the long run, these staffs will more than save their own cost, and they must be judged by that test. But when all has been said, gas was manufactured and distributed economically and efficiently before these staffs came into existence, and their salaries and expenses have to be met out of current revenue. It is, therefore, surely desirable to keep these staffs as small as possible.

Thirdly, the consumer is in close touch with a responsible local manager, and feels that he is receiving personal attention to his needs. If he should have a grievance, even if it is only an imaginary one, he has access to a person who can rectify his complaint without recourse to some obscure authority.

There is, fortunately, no such thing as a completely centralised or a completely decentralised organisation. A completely centralised organisation with all the initiative coming from the top is almost unimaginable, and a completely decentralised organisation would, of course, not be an organisation at all. But it is still true that a highly centralised organisation consists very largely of specialists and to a very small, but a very important extent, of all rounders at the top. When the time comes for the all rounders to be replaced, it is not so easy to pick their successors from among the specialists, but in a more decentralised organisation managers at all levels are being steadily trained up to managerial responsibility and will, ultimately, be ready to take the places of these in higher positions.

Organisation at Area Level

Such then were the purposes in view when the organisation of the Southern Gas Board was being considered. That organisation is headed, as in all other areas, by a Board with a Chairman and a Deputy Chairman. The staff at area headquarters is quite small—it consists of a Secretary to the Board, a Chief Accountant, an Industrial Relations and Coal Officer, a Statistics Officer, and, of course, their assistants and the typing staff..

The principal source of advice to the Board is the Management Committee, which consists of the Chairman and Deputy Chairman, the four Divisional General Managers, the Secretary and the Chief Accountant. The Management Committee in its turn is advised on financial matters by a Finance Committee, which consists of the Chief Accountant, the Secretary and the four Divisional Accountants. As a matter of policy area refrains from meddling with matters which the divisions

can arrange just as well for themselves. That is to say, the Board will only take action in matters where it can manifestly be more effective than its lower formations acting on their own initiative and according to their own ideas. There are, of course, several distinct spheres in which the Area Board is bound to lay down a policy and which the divisions could not very well be left to operate on their own.

Matters concerning the Gas Consultative Council must clearly be dealt with on an area basis. On all questions appertaining to the price of gas, discounts, block tariffs and prepayment supplements, the Area Board has laid down its policy, and practice between the different divisions has very largely been unified.

It might be of interest at this point to digress a little and consider what this unification consists of and how far it goes. Like most area boards we inherited an intriguing tangle of prices, block tariffs, two-part tariffs, discounts and special contracts, and it was decided at the outset not to make a clean sweep and unify them in one operation. Instead of this we preferred to make the unification a gradual one, so as to avoid immediate hardship to individual consumers in those areas where adjustments fell to made. To this end we have used the opportunity afforded by the various price increases which we have been compelled to impose. The widely differing levels of prices have been rationalised on a divisional basis, so that there are no longer glaring inequalities between place and place in the same division, and the first steps have been taken towards the introduction of a single block tariff throughout the area. We have not yet unified the price steps throughout the area though each division has adopted its own standard steps which apply to all places within its borders. Prepayment supplements have also been unified within each of the four divisions.

Another sphere in which a common policy for the area is obviously necessary is that of salaries, wages, and conditions of employment where national agreements have to be implemented. There is, of course, the usual area machinery for joint consultation, and any agreements that are made must be binding on all divisions and groups.

Capital Expenditure

A third sphere in which unlimited autonomy cannot be permitted is that of capital expenditure. The Board must know in advance how much capital expenditure is to be incurred, and must see that estimates are not exceeded. Just before the beginning of each financial year, budgets of capital expenditure are drawn up by groups and submitted through the divisions to the Board for approval of the amounts in principle. During the year, as the plans for the various projects included in the budget are completed, application is made by groups in the first place to divisional headquarters, for approval in detail. The Divisional General Manager may approve, modify, or reject minor proposals on his own authority, but if the project is a major one, is required to obtain the final sanction of the Board. In my own division these proposals are discussed at the monthly Group Managers' meeting and, as a matter of interest, are not infrequently improved in detail as a result of the discussion which takes place. At area level the requests for capital expenditure are discussed in the first place by the Management Committee, who make recommendations to the Board. Once a proposal has been finally approved, the execution of it is left to the group concerned, though in the case of the more considerable projects the staffs of the larger undertakings are sometimes called in to give help to the smaller ones.

Accounts

Probably the most important exception to the divisional autonomy which is otherwise the rule lies in the sphere of accounts and statistics. The area is bound to produce accounts which conform to the pattern laid down by the Minister, and if it is to do this with any degree of certainty, it, in its turn, is bound to lay down a form of accounts for the divisions and groups. The drawing up of a common form of accounts, based on a common code, a common usage, and a common set of definitions, is of course peculiarly the work of the Finance Committee. They cannot claim that finality has been reached in this rather involved subject, but a great deal of progress has been made, and it is hoped that the detailed cost accounts for the current and subsequent years of all the groups and divisions will be completely comparable one with another and one period with another. But the over-riding importance of uniformity in accounting methods or, more strictly, in accounting results, does lead to a certain duality in the relationships for example of a Divisional Accountant to his Divisional General Manager on the one hand, and to the Chief Accountant to whom he owes a functional and professional allegiance, on the other.

This is a basic question that had to be decided when setting up the organisation. Accountants at all levels are expected to operate within the broad framework of policies and procedures laid down by the Chief Accountant and his Finance Committee, but are responsible to their own General Managers for producing adequate and accurate financial information about the operation of the divisions and groups. For example, the Chief Accountant has functional supervision over the Divisional Accountants, and issues such instructions and procedures as are needed to assure uniformity. But the Divisional Accountant is judged principally in terms of the effectiveness with which he assists his own Divisional General Manager in controlling the financial and operating results of the division. Given sensible conduct on both sides no problems need arise, though I often suspect that if my Accountant does not want to do something for me, he says he is busy on something for the Chief Accountant, and I have no doubt that if he doesn't want to do something for the Chief Accountant, he tells him he is busy on something for me!

Organisation at Divisional Level

The organisation within divisions is a matter for each individual Divisional General Manager. The size and topography of the four divisions differ considerably one from another. In the Western Division for instance, the principal undertaking—Bournemouth—represents about 85% of the whole. The Eastern Division has the two large undertakings of Portsmouth and Southampton, with a compact area in the Isle of Wight. The Central Division has one large undertaking at Reading, and several medium sized and smaller works. And my own Division, the Northern, has one large, two medium, and a large number of very small works. In spite of these differences the general organisation throughout the area is a replica on a small scale of the area organisation.

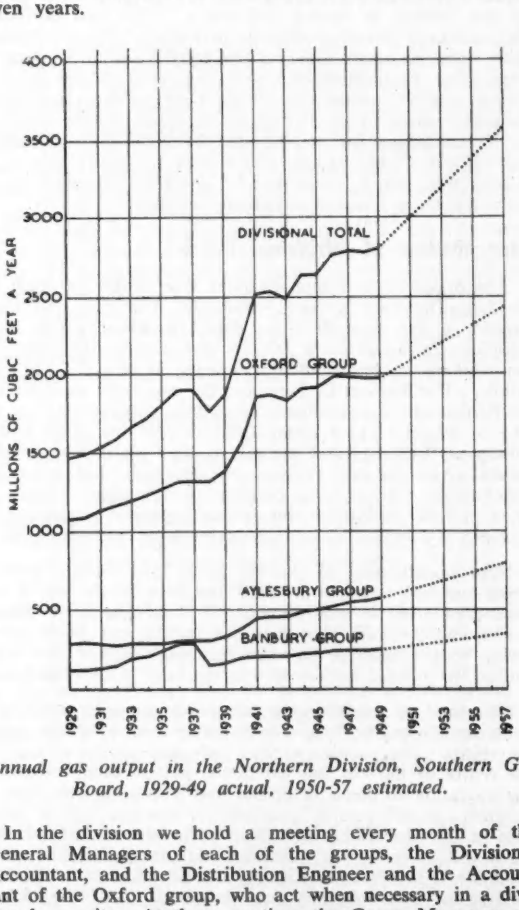
Nine undertakings in the Northern Division are already being supplied with gas in bulk and four others are in the process of being integrated. There will then be 11 producing works and 13 gasholder stations. It will not be possible, owing to the shortage of manufacturing plant at the main centres, to proceed further with integration for the time being.

Of a total gas output in the division of just under 3,000 mill. cu.ft. per annum, the Oxford undertaking alone produces nearly two-thirds. The position of the Oxford gasworks so near to the centre of the city has led in the past to many proposals for migration to some other site and if negotiations now in progress are satisfactorily concluded, a new site will be available in the near future on which to construct a new works. As it will be many years before additional gas can be made available, a supplementary supply will be taken from Reading through the interconnecting main now being laid. The Oxford group of undertakings is completely integrated, but the group is to be expanded by the addition of the units at Chipping Norton and Bicester as soon as the high pressure mains have been laid.

The Banbury group, the smallest in the division, will in future consist of Banbury, a medium sized undertaking with Adderbury supplied in bulk, and the two outlying units at Brackley and Woodford.

In the eastern part of the division is Aylesbury, which is the

headquarters of the Aylesbury group. This group is almost entirely in the Vale of Aylesbury, with Tring just over the escarpment of the Chiltern Hills. Our main problem in the Aylesbury group lies in Aylesbury town itself. Here the population has increased rapidly over the last quarter of a century and is still increasing. Since the war there have been proposals to create a satellite town at Aylesbury which would probably double the population. Unfortunately, the gasworks occupies a restricted and inconvenient site and it is almost impossible to expand the existing works to cope adequately with the anticipated increase in demand in the future. Some of the outlying works on the other hand have recently been reconstructed and are in a position to send gas into Aylesbury. Full use has been made of this fortunate circumstance, and a main has been laid from Tring to give temporary relief to Aylesbury. It is intended, moreover, to lay a main from Princes Risborough into Aylesbury, so that existing plant with suitable extensions can be used in the same way. Similarly, the plant at Winslow has been extended so that it can supply Buckingham where the present works, which have almost outlasted their usefulness, will be closed. The graph shows the output of gas in the three groups during the past 20 years, and gives an estimate of the output for the next seven years.



Annual gas output in the Northern Division, Southern Gas Board, 1929-49 actual, 1950-57 estimated.

In the division we hold a meeting every month of the General Managers of each of the groups, the Divisional Accountant, and the Distribution Engineer and the Accountant of the Oxford group, who act when necessary in a divisional capacity. At these meetings the Group Managers are free to raise any matters they wish and to give their opinions both on matters under discussion, and on the best means of implementing the decisions of the Management Committee or of the Board. A great deal of good comes from these regular monthly meetings. In the first place the Group Managers obtain an insight into the objects of area policy, and are able to satisfy themselves across the table in a way that could never be achieved by correspondence. In the second place the Group Managers have a great deal to say which is of the utmost value to me and to their fellow Managers. In fact there seems to be so much of common interest that these meetings almost invariably last far longer than their allotted time.

Within the limits of area policy and of any policies which we ourselves inside the division may agree to adopt, the Group Managers are expected to produce, distribute, and sell the gas, and to deal with their own staff and consumers on their own responsibility, though they naturally turn to divisional headquarters for help and advice when they need it.

Those who have studied these matters tell us that the greater the degree of decentralisation, the more is the need for effective control at the centre (using control, of course, in the American sense, of access to the facts which tell us whether things are going right or not). Put into plain language, this means that the more you leave to the other fellow, the more important it is to be able to know what sort of job he is making of it. With the obect of establishing effective control in this sense at the centre, an experiment is being made in the Bournemouth group with a system of budgetary control and standard costs.

A Complicated Experiment

During the three months before vesting date a firm of chartered accounts, who specialise in industrial and factory accounting, were commissioned to make all the necessary banking and other financial arrangements, and when they had done this and the Chief Accountant had taken over from them, they started work on the installation of a modern system of standard costs and budgetary control. The obects and methods of budgetary control are in themselves fairly simple, though the carrying out of the calculations and the preparation of the various operating statements seem to me to be complicated almost beyond comprehension. But the basic idea is that at the beginning of a period you sit down and think out exactly how the works ought to operate, how much it ought to produce, and to produce that, how much should be spent in the various departments, and you prepare most detailed budgets of all the expense which you think should be incurred in order to achieve that budgeted output. But not content with that, you also consider how each of these expenses in each of the departments should vary with variations in output, and then at the end of each period you find from your budgets how much you ought to have spent for the output which you have actually obtained. When you have done that, you take away the actual results, and if you are in pocket, you are said to have a black variance, and if you are out of pocket, you are said to have a red variance and you ought to do something about it.

All that sounds very simple to say, but it has taken rather more than a year to get the system going with its various printed forms and its various standardised calculations, in the Bournemouth group. It will probably not be very long now before the results of the work that has been put in will be reviewed by the area in order to determine whether it is worth while extending the system to the other groups or not. Budgetary control and standard costs have been successfully applied in other industries and it remains to be seen whether they can be as successfully applied in gas.

Organisations do not stay put—they grow, and it is the especial responsibility of those in charge of them to see that they grow up in the right way. When I first entered the gas industry many year ago, an uncle said to me 'Why are you going into gas? There's no future in it.' Well, here we are in 1951, most of us unable to meet the demands which are made on us. Nationalisation has caused many hardships and many painful readustments, but I would suggest that great developments are now possible, which were not generally possible before. It is for each one of us to go forward in the years to come with our eyes fixed on the future, building an organisation which can give even greater service to the British people than it has been able to do in the past.

The Planning and Design of

HIGH PRESSURE MAINS

From a paper by A. D. MASON, Assoc.M.Inst.Gas E.,

Technical Assistant to the Distribution Engineer, Wales Gas Board, to a Joint Meeting of the Western Junior Gas Association and the Wales and Monmouthshire Junior Gas Association.

THE area supplied by the Wales Gas Board is approximately 8,000 square miles and this area embraces a complexity of physical features each of which introduces its own particular problem. Of a population of 2½ mill., there are some 400,000 consumers which, at first sight, appears to be a very low figure until the nature of the country is taken into account. The area can conveniently be divided into three regions—*viz.*, the South Wales industrial area, the North Wales coastal region, and the remainder of the area which is largely agricultural in its nature. There are 105 undertakings of which 37 supply 77.5% of the total gas consumed and are situated in the South Wales industrial area. A further 18 undertakings supply the North Wales coastal region, while the remaining 50, supplying 8.5% of the total gas consumed, are scattered throughout the rural areas. We must have regard to the uneconomic nature of small carbonising units. There is obviously sufficient incentive to make provision for a cheaper supply of gas when it is noted that more than 30 of the undertakings in the rural areas have an annual make of less than 15 mill. cu.ft. of gas.

This problem is not peculiar to this part of the country, but faces all who are concerned with the supply of gas to rural areas. In many cases a bulk supply from a large manufacturing unit will provide the answer, but in the case of undertakings which are sited at such a distance as to create excessive transmission costs, some alternative method must be adopted A great deal of work is being carried out with the object of providing a suitable alternative, and in this respect investigations into the use of a propane-air or butane-air mixtures may be quoted. It is becoming increasingly evident that the provision of a bulk supply of gas from the larger production source, which is now becoming a familiar feature of gas manufacture, is already an important factor in gas distribution, and is bound to become more so in the future.

The most vital factor when considering a high pressure gas transmission scheme is the quantity of gas to be transmitted throughout the duration of the life of the equipment installed, as this quantity will have an over-riding effect from both the technical and the financial standpoint. The extent and variation of the present demand is, of course, known; but what of the future?

Potential Demand—Domestic

Ideal conditions would consist of 100% load factor and a daily output which does not vary throughout the year, thereby maintaining constant conditions of pressure throughout the system. This is not possible, but it is essential to remember it and to strive at all times to move in that direction. It is probable that the domestic demand will continue to provide the mainstay of the industry for some considerable time, and there are good reasons for believing that it is a load which can be developed not only in the direction of increased gas sales but also in such a way as partially to submerge peaks now experienced, or at least improve the overall load factor. Changing social conditions have a considerable effect on future trends; a higher standard of heating and comfort will be demanded in the future. Solid fuel will probably tend to become less popular due to the increasing relative cost, the labour involved, and the resultant dirt inseparable from its handling. Furthermore, the possibility of the adoption of a policy of smoke abatement by local authorities or central government could not fail to benefit the gas industry at the expense of coal.

In assessing the demand which will eventually be achieved it is necessary, then, to determine the likely development of the domestic load. To use the present load as a basis and adjust it for the increase in consumers due to the housing programme would be to admit that saturation has been reached and that no further development is envisaged. On the other hand, to plan for an increase in the domestic load without any evidence that it will be forthcoming is not a commercial proposition. For this reason I consider it essential that a policy be adopted which aims at creating a distribution structure which will not only allow for development but will encourage it. All new houses should be provided with a supply of gas, and the initial installation should be suitable for the final development stage. The importance of installing the maximum number of gas points has been appreciated by the Wales Gas Board. Standard terms for the supply of gas to new houses have been instituted and a minimum of five points has been included in these terms.

The Institution of Planning Authorities has greatly facilitated the collection of information in relation to housing development, and by close collaboration with them it is possible to ascertain the siting, extent, and rate of development. This is of the utmost value, as it allows a planned distribution policy which was rarely possible when a great deal of individual building was practised. In certain circumstances it may be considered to be an advantage to analyse population trends and use them as a basis for the determination of future development; but, unfortunately, they do not follow a regular path and are considerably affected by the influence of industrial prosperity, international conflicts, and even Government policy. The latter is often closely related to the dispersal of industry, with its consequences.

There are two figures with which we are very closely concerned. They are the probable consumption of gas per annum and the peak hourly rate imposed upon the distribution network. It would be more accurate to call the latter the peak instant rate or demand. The consumption of gas per consumer per year is a figure which has an all-important bearing upon the economics of any scheme. Assuming that the same mains layout could be used in two schemes one of which was based upon 100 therms per consumer per annum, and the other 150 therms per consumer per annum, the cost per therm of gas transmitted in the second scheme will be two-thirds of the equivalent cost in the first scheme. A figure of between 100-130 therms per annum per domestic consumer is used quite extensively nowadays when considering the economics of the supply of gas to a new estate. Where, however, a supply of gas is available which is constant in quality and pressure, is sold at an attractive price and backed up by an efficient organisation, the average annual consumption for domestic consumers should be considerably in excess of this.

Hard and fast rules may be very misleading due to the number of variables encountered, such as the provision of free coal in a mining area, the general level of incomes in a particular vicinity, etc. It is only by sifting all the available evidence that an ultimate consumption per annum may be estimated for all the domestic consumers in the area of supply under consideration.

The decision as to what constitutes the ultimate stage of development must be governed by the probable life of the materials and equipment to be used in the provision of the

supply of gas, if estimated annual charges are to bear any relation to practical results. Using present demand and probable ultimate demand, assuming a constant rate of development, it will be possible to specify the probable demand at any stage of development.

One basis upon which the estimation of future loads to be carried by a bulk supply system may be determined is by the institution of consumer surveys in all areas to be served by the undertaking, with the addition of areas already developed or proposed to be developed on the route of the main, and not at present receiving a supply. Estimates are made on the assumption that a high thermal rate per consumer would be obtained. New housing programmes and potential industrial consumption may be taken into account to assess the probable position at the ultimate stage. The result of such surveys gives an estimated consumption of the fully developed area to be served, amounting to anything over a 50% increase, and the system must be designed accordingly.

Potential Demand—Industrial

In view of the studied dispersal of industry for strategic or economic reasons, the forecast of gas demand, particularly in rural areas, over the next 20 years or so presents a problem. The study of past history will be of little value; any estimation will contain an element of risk. Certain development areas have been specified, and in this connection it is imperative that close liaison be maintained with the Board of Trade in the matter of factory allocation in order that relevant information is obtained at an early date. A close contact must also be maintained with existing industrial consumers in order that plans may be prepared at an early stage for alterations or extensions which may be decided upon. Wherever possible this contact should have the added facility of giving information and guidance upon the most beneficial method to be adopted in utilisation. Here again a virile sales policy should be instituted to obtain all suitable loads so that the element of risk in estimation of future demand is reduced to a minimum. It is assumed that when such a sales policy is implemented, sufficient gas can be made available to meet the demand so created. This is of paramount importance in view of the coal situation and materials supply position, not to mention local labour conditions.

Many attempts have been made to find some constant with which to relate industrial demand. The estimation of future industrial consumption of a fixed quantity of gas per unit of floor area has been advocated in some quarters, but examination of actual results proves that such a system is liable to be misleading. Recently published data gave the consumption per acre in the industrial zones of Welwyn Garden City and Boreham Wood as 67,000 cu.ft. and 14,000 cu.ft. respectively, and it is quite evident that greater variations will occur between small factories which are heavy consumers and large factories which may only require canteen equipment, and so on. In areas where stable industries are situated it is reasonable to assume that the bulk of increased industrial consumption will be due to the switching over from solid fuel to gas.

So often nowadays we tend to become confused between what may be termed the blue-print approach and a planned approach to various problems. For a group of men, or even one man, to draw up a detailed set of instructions which anticipate the future behaviour of large numbers of people is ridiculous, but intelligent general assumptions may be arrived at by careful analysis of numerous contributory factors.

So far, the demand has been considered on an annual basis, but due to seasonal fluctuations the daily load varies materially, and this introduces a variable load factor which considerably complicates the issue. With adequate holder storage it is possible to allow a constant rate of flow throughout 24 hours and the maximum rate of flow will be that required on the day of maximum demand. The determination of the figure to be used is often glibly taken as a fraction of the annual output, usually varying between 1/200-1/300, but this value depends upon the peculiarities of the system to be supplied and should not be taken without first ensuring that it does indeed have a direct bearing on the actual seasonal fluctuations encountered.

The selection of the most suitable size of main for any specific condition is a matter of economic compromise between the capital charges on the main and pumping costs, as long as careful regard is paid to practical operable efficiency. Pumping costs are dependent upon the initial pressure required at the outlet of the compressor, and not only does this pressure vary during the development stage, but it also varies during each year as the demand fluctuates. It is, therefore, just as important to examine carefully the particular rates of flow used in compressing cost calculations as it is to determine the potential demand. Under ideal conditions a constant rate of flow would be maintained and this rate of flow could be used in the flow calculations in order to determine initial pressures, and also in the formula used for finding the horse power required at the compressor and, hence, compressing costs. A compressor of suitable size could be installed and would work at maximum efficiency during the whole of its life. The main sizes would also be at a minimum with the result that the system could be installed and would operate at the lowest possible cost.

DISCUSSION

Mr. F. W. Sansom (Exeter), President of the Western Association, referred to Mr. Mason's remarks on thermal load. Mr. Sansom considered that this depended on the social structure of an area, divided between rural, middle to high class, and artisan. In his area they were looking towards 200 therms per annum for the residential consumer, but they had to take a long term view of that in the light of the prices situation. The dispersal of industrial load was not such a problem in the Western area except in the vicinity of Bristol. But generally industry did not affect them. They had a good idea where industrial developments would take place, which was again near the towns. Mr. Sansom drew attention to Mr. Mason's comment that in areas where stable industries were situated it was reasonable to assume that the bulk of increased industrial consumption would be due to the switching over from solid fuel to gas. He reminded members of oil, which had to be treated as a serious competitor and had not to be overlooked.

Mr. W. D. Hird (Distribution Engineer to the Wales Gas Board) said that a very great problem confronted them in grid schemes and the laying of mains. They did not think they should take direct supply mains through a small village without giving that village a supply of gas.

Mr. B. G. Hawkings (Plymouth), Secretary of the Western Association, attached great importance to bulk supply. He thought, in the light of Mr. Mason's remarks, that there was an opportunity for them to become a two-fuel industry, particularly in places in rural areas. They might be helping themselves if they utilised coke to a greater extent. Speaking for his own area, in the summer they would revert to gas for heating requirements and that would be a time when the bulk supply system would be less heavily loaded.

Mr. K. G. Pemberton (Torquay) remarked that in deciding pipe sizes they should err on the large size for economic reasons. In 20 years' time a mile of 6 in. main would very possibly cost twice as much to lay.

Mr. J. Foxland (Cheltenham) said they also had to be alive to the effects of corrosion. Speaking of the future, he said the question was whether they were becoming more highly industrialised as a nation or was there to be any loss by emigration or loss of markets?

Mr. A. H. Dyer (Newport) said it was difficult to know what was going to happen in the future. In his own district they had been called upon to make a substantial supply of gas to a works. Three years ago they would never have visualised the works occupying its present site.

Mr. C. Evans (Garw and Ogmore) remarked that a number of the mains in his district had to be re-laid, owing to ground movements. The Wales Gas Board was faced with laying larger mains in the coming five, 10, or 20 years.

Mr. R. G. Bartlett (Torquay) said that in his division they were proposing to put in 500 miles of high pressure main and to reduce their gas-producing units from 72 to 12 or 13.

A vote of thanks to Mr. Mason for his paper was proposed by **Mr. T. W. Clapham** (Bristol) and seconded by **Mr. Richard Jones,** Chairman of the recently-formed North Wales Section of the Wales and Monmouthshire Association.

TRADE NEWS

G. E. Simm (Machinery), Ltd.

The above company has been appointed sole sales representatives for the 'Holset' range of flexible rubber block couplings, resilient gears and hydraulic torsional vibration dampers, as manufactured by W. C. Holmes & Co., Ltd., of Huddersfield.

The coupling design is based on the scientific use of rubber blocks in compression, as force transmitting elements between blades of the driving and driven member. Pairs of rubber blocks which vary in number according to the size of coupling are initially compressed at the works when inserted into cavities formed by the driving and driven members. This initial compression is such as to prevent complete unloading of either block under the most severe torque conditions. Each block is allowed free space to deform.

It is not generally realised that rubber is even less compressible than water. This is one of the reasons for example, why the old conventional pin and bush type couplings always have such a low resiliency factor, the rubber being so confined as to be incapable of its natural change of shape when load is applied. A feature of the 'Holset' coupling is the multi-block construction which employs the maximum volume of rubber, and is responsible for the high shock absorption and damping characteristics found in these couplings.

It will be seen that the blades of the driving and driven members are of considerable area, hence the blocks are uniformly stressed and not subject to the high specific loads which result from small arcs of contact. An important fact is the rapidity with which machinery can be disconnected, it being only necessary to split the coupling by taking out the fitted bolts, whereupon either machine may be instantly removed. Reconnection is simply a reversal of the above process.

All metal components are made from high class materials, precision machined all over. The bores of every coupling are machined to suit standard shafts and keyways.

The manufacturers claim that the main advantages are as follows:

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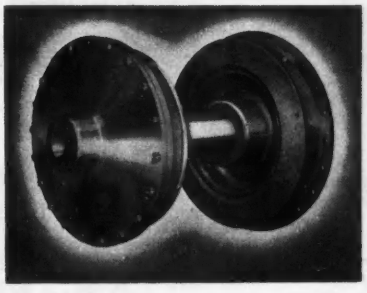

Twin-coupling Cardon shaft for maximum variation in alignment.

2. Protects any connected machinery, by providing the most ideal running conditions.

3. Easily disconnected. Either machine can be lifted out vertically merely by removing the coupling bolts.

4. There are no parts to wear. The rubber blocks have a very long life which under normal service conditions is equal to that of any prime mover.

5. Can work in dusty and oily conditions at high temperatures.

6. Requires no withdrawal space for covers, thus permitting the minimum space between coupled units. *G. E. Simm (Machinery) Ltd., East Parade, Sheffield, 1.*

Birlec

Leaflet No. 51/1—'Conveyor Furnaces'; No. 51/3—'Gas Carburising Furnaces,' and the leaflet dealing with 'Low Frequency Melting of Aluminium Alloys,' has been reprinted. *Birlec, Ltd., Tyburn Road, Erdington, Birmingham 24.*

Parkinson and Cowan

The Group of Companies has issued a history after 135 years in the manufacturing industry. It describes the main products and activities of the Group and its companies, which include, other than the well-known gas meter, stove and water heater organisations, Measurement, Ltd., Aspec (London), Ltd., Monitor Engineering & Oil Appliances, Ltd., Rotoplunge Pump Co., Ltd., and the Metropolitan Leather Co., Ltd. It is well produced and illustrated and worthy of perusal. *The Parkinson & Cowan Group of Companies, Terminal House, Grosvenor Gardens, London, S.W.1.*

Bright, Son & Co.

We have been advised by the well-known firm of clock controller repairers, Bright, Son & Co. (Clerkenwell), Ltd., that they are concentrating all departments in much larger factory space at Sutton Works, Arlington Avenue, Islington, N.1, and all communications should be sent to that address. The telephone number is Canonbury 2049 and the telegraphic address: Brifulson, Nordo, London.

W. Edwards & Co.

We have received particulars of a new barometrically compensated capsule dial gauge manufactured by this firm. This model (C.G.1.) is a precision mechanical instrument for the continuous measurement of low gas and vapour pressures. Accurate within 2½% of full scale deflection, it is unaffected by barometric changes and has no manometric or sealing liquids or mercury hazards. *W. Edwards & Co. (London), Ltd., Worsley Bridge Road, Lower Sydenham, S.E.26.*

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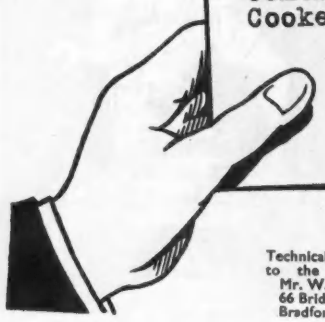

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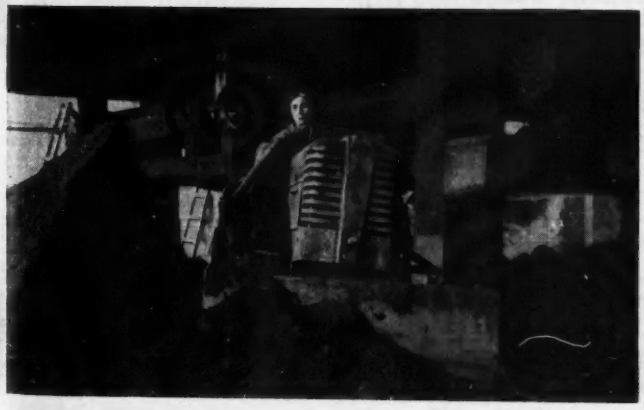

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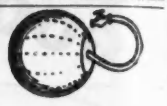

Round or Cylinder Shape.
Pull-through and Expanding MAIN STOPPERS.
All types of INDIA-RUBBER BOOTS.
DRAIN RODS AND WHALE-BONE BRUSHES.
HOSE AND TUBING FOR ALL PURPOSES.

Contractors' & Miners' Woollen Jackets, Trousers, Hats, &c.

Stokers' Mitts and Gloves of every description.
244, Coswell Road, LONDON, E.C.1

J. BROWN & CO. LTD.
SAVILE TOWN, DEWSBURY, YORKS.
Supply:–
"BROWNOX-de-LUXE" PURIFYING MATERIAL
Purchase:–
SPENT OXIDE

RETORTS MADE GAS TIGHT
when patched with–
ONX SUPER 83 BRAND FIRE CEMENT

A recent testimonial from Gas Dept.
"We are pleased with results obtained after using ONX Super '83' Brand.
"Our settings were very bad, with large cracks in retorts, and portions of wall actually collapsed.
"Now, six months after repairing 28 retorts they appear as sound as ever; we anticipate the life of the settings will be prolonged."
A. L. CURTIS & CO., *Westmoor Works*, **CHATTERIS**, *Cambs., Eng.*

EB *Service in*
WELDING
SPRAYING
GUNNING
of
GAS RETORTS
Write for particulars of how E.B. experience can help in reducing maintenance costs in refractory constructions.
Manufacturers of all types of Cements.
E. B. REFRACTORY CEMENT CO. LTD.
OAKFIELD OFFICES, BRETTELL LANE, STOURBRIDGE

OXIDE
DUTCH AND DANISH BOG ORE
SPECIALLY ACTIVATED OXIDE OF IRON
Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.
Send your enquiries to
GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873
PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.
Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

"KLEENOFF"
THE COOKER CLEANER
Tins for Sale to Consumers. In Bulk for Works Use
OXIDE OF IRON
BALE & CHURCH, LTD.
7, CROMPTON WAY, MANOR ROYAL, CRAWLEY, SUSSEX.
Telephone CRAWLEY 12 Telegrams: "Balefire, Crawley."

The
LIMIT OF EFFICIENCY CAN BE REACHED
by the use of
LUX
GAS PURIFYING MATERIAL
Sole Importers:
HARRISONS (London) LIMITED
66, Mark Lane, LONDON, E.C.3
Telegrams: Birchrock, London Telephone: ROYal 3120

MISCELLANEOUS

SMALL single truckloads and larger quantities of good ROUGH BREEZE from any gasworks large or small, in the United Kingdom required by merchants paying own railway tolls. Cash price and particulars to No. 9378, *Gas Journal*, 11 Bolt Court, Fleet Street, London, E.C.4.

PLANT FOR SALE

PHONE 98 STAINES.

DIESEL LOCO, 24 in. gauge, 20 H.P. B.D. JAW CRUSHERS, 12 in. × 7 in. Twin R.S. HOPPER 9 ft. × 5 ft. × 5 ft. 3 in. deep. B. & W. 3-cyl. COMPRESSOR, 400 c.f.p.m., 100 lbs. w.p. 26 k.w. TANGYE DIESEL GENERATING SET, 220 v. D.C. Vert. H.S. STEAM ENGINES 20/350 H.P.—Harry H. Gardam & Co., Ltd.

REPAIRS

Change of Address
BRIGHT, SON & CO. (Clerkenwell) LTD.
(A.I.D. approved)
have removed to larger factory premises.
All Clock Controller Repairs should be sent to
SUTTON WORKS, ARLINGTON AVENUE, ISLINGTON, N.1.
Phone: Canonbury 2049 P.B.X. Grams: Brifulson, Nordo, London.

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

NEW SUBSCRIPTION and CLASSIFIED ADVERTISEMENT RATES OPERATING FROM JAN. 1, 1951.

Subscription Rates: Home and Empire :- 52/- per annum; Foreign :- 60/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide: block screen 120.

BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone: Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. Telegrams: Gasking, Fleet, London.

APPOINTMENTS VACANT

ENGINEER with knowledge of fuel combustion and some plant experience required for Process and development work at Carbon Black Plant. Commencing salary £600 p.a. Applications stating age, details of qualifications and experience should be forwarded within fourteen days to Works Manager, Philblack Ltd., Avonmouth Docks Estate, Avonmouth.

GAS ENGINEER required by a major British Oil Company operating in the Middle East to supervise all work associated with installation, operation and maintenance of domestic gas installations and appliances, and local mains system and pressure regulators supplying housing areas. Candidates should be under 35 years and have passed the City & Guilds Final examination in Gas Fitting. Practical experience in the distribution department of a gas undertaking covering all branches of gas fitting and appliance installation is essential. Attractive salary plus generous allowance in local currency, free passages, kit allowance, free medical attention, good leave arrangements, Pension Scheme. Write, giving personal particulars and details of qualifications and experience, quoting Dept. F.23/F, to Box 3711, at 191, Gresham House, E.C.2.

NORTHERN GAS BOARD

HEXHAM DIVISION.

APPLICATIONS are invited for the position of ASSISTANT SALES SUPERINTENDENT.

Applicants should have experience in administration and be competent under the general direction of the Divisional Sales and Distribution Superintendents to organise and control sales of appliances in the Division.

The Salary will be within Grade B or C, Provincial B of the National Salary scales, according to age and qualifications.

The successful candidate will be required to pass a medical examination and will be subject to the provisions of any Superannuation Scheme which may be adopted by the Board.

Applications, stating age, and giving details of experience together with the names of two referees should be forwarded to the undersigned not later than May 14, 1951.

H. D. Lees,
Divisional General Manager.

4 & 6, Fore Street,
Hexham.

SOUTH WESTERN GAS BOARD

CHELTENHAM SUB-DIVISION.
ASSISTANT STATION ENGINEER,
CHELTENHAM WORKS.

APPLICATIONS are invited for the position of ASSISTANT STATION ENGINEER at the Cheltenham Gas Works. Candidates should possess the Higher Grade Certificate of the Institution of Gas Engineers (Manufacture) and have had sound experience in the operation of Horizontal, Continuous Vertical Retorts and modern C.W.G. manufacturing plants.

The successful applicant will be responsible to the Station Engineer for the general supervision of all activities carried out on the Works, including the control of labour.

The commencing salary will be within the range of Grade IX of the National Salary scales (£520-£620) according to experience and qualifications.

The successful applicant may be required to pass a medical examination.

A house will be available at a reasonable rent.

Applications giving personal details, particulars of training, qualifications and experience, together with the names and addresses of two referees, should reach the undersigned not later than May 19, 1951.

A. L. Morris,
Manager.

Cheltenham Sub-Division,
South Western Gas Board,
North Street,
Cheltenham, Glos.

SOUTH WESTERN GAS BOARD

NORTHERN DIVISION.

APPOINTMENT OF
PRINCIPAL ACCOUNTANCY ASSISTANT
BATH SUB-DIVISION.

APPLICATIONS are invited for the above-mentioned post, at a salary within the following grade :—

A.P.T. XI ... ... £595-£720 per annum.

Applicants should either possess, or be studying for, a recognised Accountancy qualification, and if not yet qualified should preferably have passed their Intermediate Examination, and be about thirty years of age.

Applications, stating age, qualifications and experience, together with details of present and previous appointments and the names and addresses of two persons to whom reference can be made, should be received by the undersigned not later than Saturday, May 12, 1951.

James Carr,
General Manager.

Radiant House,
Bristol, 1.

SOUTH WESTERN GAS BOARD

NORTHERN DIVISION.
APPOINTMENT OF
SENIOR ACCOUNTANCY ASSISTANT
SWINDON SUB-DIVISION.

APPLICATIONS are invited for the above-mentioned post, at a salary within the following grade :—

A.P.T. IX ... ... £520-£620 per annum.

Applicants should either possess, or be studying for, a recognised Accountancy qualification, and if not yet qualified should preferably have passed their Intermediate Examination, and be about thirty years of age.

Applications, stating age, qualifications and experience, together with details of present and previous appointments and the names and addresses of two persons to whom reference can be made, should be received by the undersigned not later than Saturday, May 12, 1951.

James Carr,
General Manager.

Radiant House,
Bristol, 1.

EASTERN GAS BOARD

NORWICH DIVISION.
CHEMIST FOR MOBILE LABORATORY.

APPLICATIONS are invited for the position of CHEMIST to take charge of a Mobile Laboratory which will serve the small and medium sized Works in the Norwich Division.

The commencing salary will be within the range of Provincial "A," Grade A.P.T. VI of the National Salary Scales.

Candidates should have a sound practical and theoretical knowledge of chemistry; be capable of carrying out all standard Gas Works tests and be able to apply the results to Works practice. They should have completed their period of National Service.

The successful applicant will be required to drive and be responsible for the Mobile Laboratory and the appointment will be based on the Divisional Headquarers at Norwich. The position will provide excellent opportunities for broadening the experience of the person appointed and prospects of promotion may not be confined to the chemical side.

Applications, stating all relevant details, together with the names of two referees should be sent to the undersigned within fourteen days of the appearance of this advertisement.

Ronald A. Weston,
General Manager,
Norwich Division.

Eastern Gas Board,
Norwich Division,
Gas Works,
Bishop Bridge,
Norwich.
February 19, 1951.

PRODUCTION MANAGER.

A well-known firm of Gas Appliance manu-facturers requires a qualified and experienced PRODUCTION MANAGER who will also be required to act in the capacity of principal assistant to the Works Director. Previous experience in the manufacture of gas appliances (cookers, fires, etc.) is essential and a knowledge of vitreous enamel processing would be an advantage. Only well-educated, qualified and experienced men need apply. Four-figure salary. No. 9962, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

WEST MIDLANDS GAS BOARD

BIRMINGHAM DIVISION.

DRAUGHTSMAN.

APPLICATIONS are invited for the position of DRAUGHTSMAN on the staff of the Divisional Engineer, Saltley Gas Works, Birmingham.

The salary for the post will be not less than £385 per annum on commencement rising by annual increments to a maximum of £465 per annum, in accordance with Grade V of the salary scales of the National Joint Council for Gas Staffs.

Candidates should possess a sound knowledge of general engineering (to Higher National Certificate Standard) with experience in plant lay-out. A knowledge of gas works plant will be an advantage but is not essential.

The successful candidate may be required to pass a medical examination and the appointment is subject to any superannuation scheme that the Board may, in due course, adopt.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to Mr. J. E. Wakeford, Divisional Manager, West Midlands Gas Board, Birmingham Division, Gas Offices, Edmund Street, Birmingham, 3, to reach him not later than fourteen days after the appearance of this advertisement. Applicants are requested to quote ref. T.P.3 when replying to this advertisement.

F. H. Cureton,
Secretary.

WEST MIDLANDS GAS BOARD

BIRMINGHAM DISTRICT.

ENGINEER,

SWAN VILLAGE GAS WORKS.

APPLICATIONS are invited for the above position with direct responsibility to the Divisional Engineer.

The Works has a capacity of 8 million cubic feet per day of coal gas and carburetted water gas which will shortly be increased to 11 million cubic feet per day. In addition, a new Works, having a capacity of a further 11 million cubic feet per day, is under construction on an adjoining site.

The duties of the post will comprise complete supervision of the Works involving control of technical staff and labour with full responsibility for maintenance. A high standard of technical qualifications will be called for. The salary will be not less than £1,200 on commencement rising by annual increments to a maximum of £1,500 per annum and the successful applicant will be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future.

Applications should be addressed to the Personnel and Establishment Officer, West Midlands Gas Board, 6, Augustus Road, Edgbaston, Birmingham, 15, giving full particulars of age, experience and technical qualifications, together with the names of two referees, and reach him not later than May 12, next. Applicants are requested to quote ref. T.P.3 when replying to this advertisement.

F. H. Cureton,
Secretary.

(*Classified advertisements continued on Supplement 4*)

APPOINTMENTS VACANT (ctd.)

NORTH WESTERN GAS BOARD

BURNLEY-COLNE GROUP.

HOME SERVICE ADVISERS.

APPLICATIONS are invited for the above posts at a salary within Grade A.P.T. V (female) of the National Salary Scales (£308-£372 per annum).

Candidates should hold a qualification in domestic science and have experience in the organisation of cookery demonstrations, lectures and district home service calls.

The successful applicants may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, appropriately endorsed, giving personal details and particulars of training, qualifications and experience should be addressed to the General Manager, North Western Gas Board (Burnley-Colne Group), Parker Lane, Burnley, within fourteen days of the publication of this advertisement.

NORTH WESTERN GAS BOARD

DEPUTY INDUSTRIAL RELATIONS OFFICER.

APPLICATIONS from suitably qualified persons are invited for the above post at the Board's Headquarters at a salary of £800 per annum.

The person appointed will be required to assist the Industrial Relations Officer in all aspects of industrial relations and staff establishment work including the activities of the joint negotiating machinery for the settlement of terms and conditions of employment of manual workers, intermediate grades and staff. Preference will be given to applicantswho have some experience of the initiation of education and training schemes.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, appropriately endorsed, giving personal details and particulars of present position, training, qualifications and experience should be addressed to the Secretary, North Western Gas Board, Bridgewater House, 60, Whitworth Street, Manchester 1, within fourteen days of the publication of this advertisement.

NORTH WESTERN GAS BOARD

PRESTON GROUP.

ENGINEERING DRAUGHTSMAN.

APPLICATIONS are invited for the position of ENGINEERING DRAUGHTSMAN at Group Headquarters for work which will be connected principally with the Distribution Department.

Applicants should possess or be studying for a recognised professional qualification and have experience in Gas Distributing or similar systems, Survey work, Buildings and Plant. Experience in general Gas Works constructional work would be an advantage.

The salary will be within Grade A.P.T. VII of the National Salary Scales (£450-£530 per annum) and the successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, suitably endorsed, furnishing details of training, qualifications and experience, together with the names and addresses of two referees should reach the General Manager, North Western Gas Board (Preston Group), 108, Fishergate, Preston, within fourteen days of the publication of this advertisement

SOUTHERN GAS BOARD

PORTSMOUTH, GOSPORT AND BOGNOR REGIS GAS UNDERTAKING.

DISTRICT MANAGER.

APPLICATIONS are invited from suitably qualified persons below the age of 40 years, for the position of DISTRICT MANAGER, at a commencing salary ranging between £570 and £670 per annum (A.P.T. X), inclusive of current War Bonus. Applicants should have served a period of pupilship or other instruction in the Sales and Fittings Department of a Gas Undertaking and the holding of theHigher Grade Certificate in Gas Engineering (Supply) of the Institution of Gas Engineers will be an advantage. The successful candidate will be expected to work to the direct instructions of the Sales Manager, to whom he will be a principal assistant, and the duties will include the control and training of all Gas Fitters, Apprentices and Maintenance Fitters working on the District of the Undertaking. Particular regard will be paid to a candidate's practical training and knowledge and his responsibility in this sphere in the immediate past.

The successful applicant will be expected to reside in a house which is the property of the Undertaking, at a reasonable rental for which will be paid by a suitable deduction from salary. He will be required to pass a medical examination.

Applications, stating age, whether married or single, qualifications, training and experience, together with the names of two persons from whom references may be obtained should be forwarded to the undersigned not later than May 31, 1951.

H. M. LAWRENCE,
General Manager.

Gas Offices,
The Square,
Portsmouth.
April 20, 1951.

NORTH EASTERN GAS BOARD

WAKEFIELD GROUP.
JUNIOR TECHNICAL ASSISTANT (INDUSTRIAL).

APPLICATIONS are invited for the above appointment within the salary range Provincial 'A' A.P.T. Grades IV and V, £250 to £465 per annum, according to experience. Applicants should preferably have had experience in the operation of industrial gas appliances or heat process work and central heating installations and should possess the Ordinary Grade Certificate of the Institution of Gas Engineers (Supply).

The appointment will be subject to (*a*) such superannuation scheme as the Board may adopt and (*b*) the successful applicant passing a medical examination.

Applications stating age, experience, training, etc., should be addressed to the Group General Manager, North Eastern Gas Board, Wakefield Group, Warrengate, Wakefield, to reach him within ten days of the publication of this advertisement.

J. C. GARDNER,
Secretary.

Bridge Street,
Leeds, 2.
April 24, 1951.

NORTH EASTERN GAS BOARD

ENGINEERING ASSISTANT.
AREA HEAD OFFICE, LEEDS, 2.

APPLICATIONS are invited from Engineering Draughtsmen for the above position at a commencing salary within Grade A.P.T. IX (£520-£620), the point of entry to be determined by qualifications and experience.

The successful applicant will be required to pass a medical examination and to subscribe to such superannuation scheme as the Board may adopt.

Preference will be given to draughtsmen with Higher National Certificate (Mechanical), or equivalent, and with experience in the layout, design and detailing of one or more of the following :—

1. Coal and Coke Handling Plants.
2. Gasworks Auxiliary Plant.
3. Gasholders.
4. Pipework.

Form of application may be obtained from the Chief Engineer, at the address below, and should be returned not later than fourteen days after the date on which this advertisement appears.

J. C. GARDNER,
Secretary.

Bridge Street,
Leeds, 2.
April 24, 1951.

EDUCATIONAL

PRODUCTION MANAGER.
THE UNIVERSITY OF SHEFFIELD.

THE University invites applications for a COKE RESEARCH FELLOWSHIP of the value of £350 per annum provided by the British Coke Research Association. The successful candidate will be required to undertake post-graduate research on a subject connected with the Coking Industry. Full particulars may be obtained from the undersigned to whom applications should be sent not later than June 1, 1951.

A. W. CHAPMAN,
Registrar.

Used by the leading Gas Companies for the protection of lower plates and cuppings of Gasholders. The most efficient anti-corrosion paint in existence. HUMIDINE never cracks, never dries and is absolutely impervious to water. OXYGRAFITE GASWORKS PAINT is also manufactured by . . .

ASPINALLS
(PAINTS) LIMITED
CARLETON - SKIPTON - YORKS
TELEPHONES: SKIPTON 5489

n.d.h.

THE "FLUXITE QUINS" AT WORK

"Six shots a tanner, what joy!
"But that ball won't stay put", shouted Ol.
"That jet's far from right
What it needs is FLUXITE,
A bad piece of plumbing, old boy".

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." It does not "poison" the solder nor corrode the metal—and can be used with safety even on sensitive apparatus.

With Fluxite, joints can be "wiped" successfully that are *Impossible* by *any other method.*

FLUXITE has been used for over 40 years in Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS—in tins—From 1/- upwards.

The FLUXITE GUN puts FLUXITE where you want it by a simple pressure. Price 2s. 6d. or filled 3s. 6d.

ALL MECHANICS WILL HAVE

FLUXITE

IT SIMPLIFIES ALL SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS." Price 1d. each.

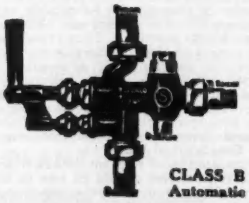
Fluxite Ltd. (Dept. G.J.), Bermondsey Street, S.E.1

PATENTS

KINGS PATENT AGENCY, LTD.
(Director, B. T. King, A.I.M.E., Patent Agent)
Advice Handbook, and Consultations free. 146a, Queen Victoria Street London, E.C.4 Phone : City 6161.

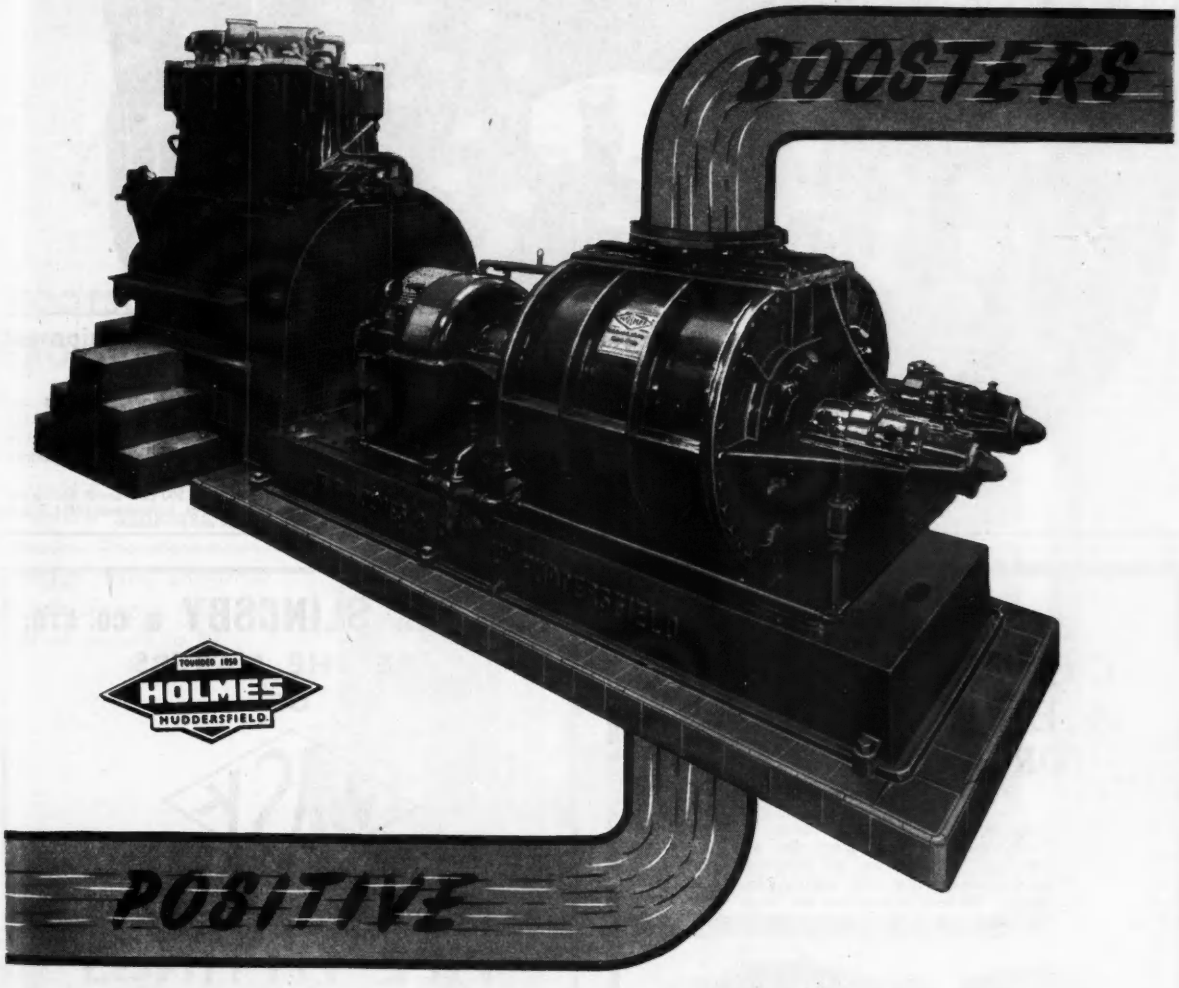
FIRE!
WHERE'S YOUR
NU-SWIFT?
The World's Fastest Fire Extinguishers — for every Fire Risk
Pressure-operated by sealed CO_2 Charges
NU-SWIFT LTD. • ELLAND • YORKS
In Every Ship of the Royal Navy

BUFFALO INJECTOR
(British Made)



CLASS B
Automatic
Operated entirely by one handle
GREEN & BOULDING, LTD.
162a, DALSTON LANE, LONDON, E.8

Holmes – Connersville



Reliable plant means confidence and peace of mind to the engineer.

Efficient operation and years of trouble-free service result from a wise choice of boosting equipment.

Such features are an inherent characteristic of the Holmes-Connersville Booster.

W. C. HOLMES & CO. LTD. · HUDDERSFIELD · LONDON · BIRMINGHAM
Telephones. Huddersfield 5280 London, Victoria 9971 Birmingham, Midland 6830

C 313

There is KEITH BLACKMAN Gas Equipment for almost every industrial heating process . .

KEITH BLACKMAN LTD. MILL MEAD ROAD, LONDON, N.17.

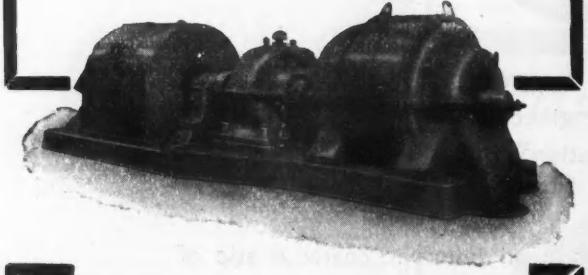
including High and Low Pressure Gas Injectors, Burners and Nozzles; Blowpipes; Soldering Irons and Stoves; Air and Gas Mixture Controllers; Thermostat Controllers; Back-pressure, Meter Protection and Safety Shut-off Valves; Pressure Governors, Air and Gas Compressors; Radiant Disc Burners, etc.

The illustration shows a concentric ring burner for a 500-gal. varnish boiling pot. Made in 5 sections with 148 stainless steel burner heads, it consumes 1200 c. ft. p.h. from "K.B." Mixture Controllers and Air Blower.

TURBO-COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.

* * *

We build a complete range of Compressors & Exhausters for air and GAS, suitable for all purposes connected with the GAS industry, including Turbo-Compressors for large capacities, as illustrated below.



WRITE FOR PAMPHLET No. 1018 GIVING PARTICULARS—

REAVELL & Co., LTD.,

RANELAGH WORKS, IPSWICH.

Telegrams: REAVELL, IPSWICH Telephone: 2124 & 5.

WALTER SLINGSBY & CO. LTD.

ARE THE MAKERS OF

WASK TRADE MARK

MALLEABLE IRON PIPE FITTINGS FOR OVER FIFTY YEARS

OVER 5,000 TYPES & SIZES FOR GAS, WATER, STEAM, OIL AND BENZOL

AIR TEST AND TAPER THREADS GUARANTEE THEIR UNFAILING SERVICE

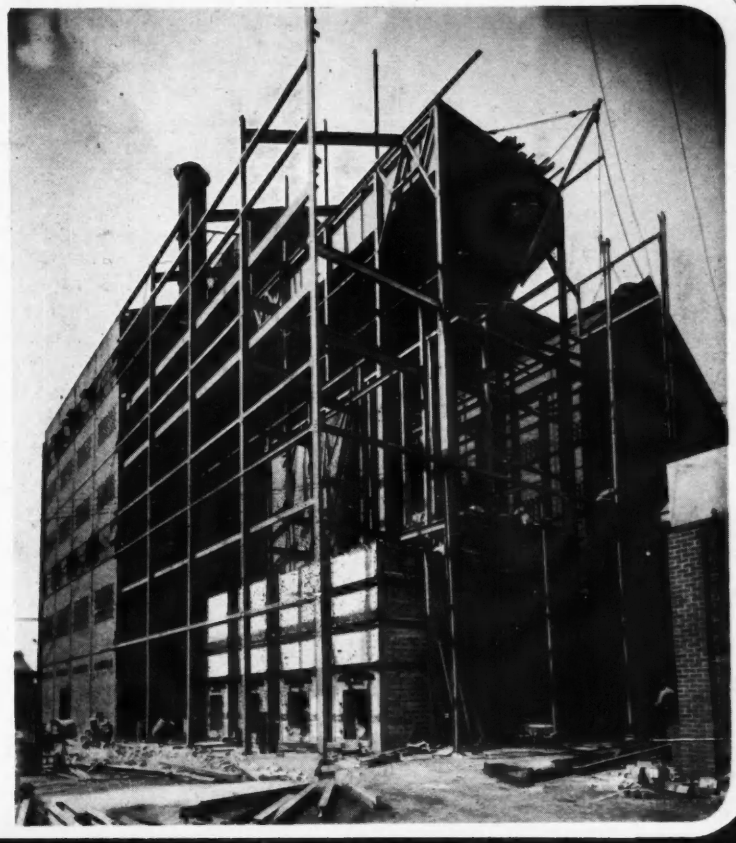
Please write us at:—

NEW DAM WORKS, KEIGHLEY.

'Grams: Malleable, Keighley. 'Phone: Keighley 3749 (2 lines)

Printed by STRAKER BROTHERS LTD., E.C.2, for WALTER KING, LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C.4. Wednesday, May 2, 1951.

Work in progress



FOOTSCRAY, AUSTRALIA

ince the original carbonizing ant at Footscray consisting f 24 retorts was installed in 926, several additions have een made. The latest exten- on, shown here, comprises 6 retorts, bringing the total umber of retorts to 80.

West's Gas

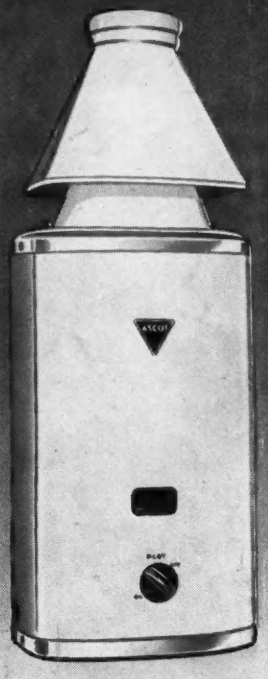
IMPROVEMENT CO., LTD.

MILES PLATTING, MANCHESTER, 10

Telephone: COLlyhurst 2961-5. Telegrams: Stoker, Manchester.

London Office: COLUMBIA HOUSE, ALDWYCH, W.C.2. Telephone: HOLborn 4108-9. Telegrams: Wesgasco, Estrand.

The new Ascot 709 Multipoint offers



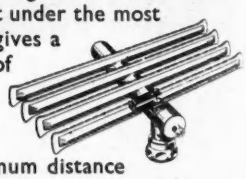
LESS MAINTENANCE

BETTER SERVICE TO THE USER

IMPROVED APPEARANCE

Ascot research now adds to the inherent advantages of instantaneous water heaters, by incorporating these modifications in the new Ascot 709 Multipoint:—

STAINLESS STEEL BURNER: selected after extensive research into the possibilities of manufacturing burners from materials other than brass. The new burner is so highly resistant to corrosion that blockage from this cause, *and therefore burner maintenance*, is virtually eliminated. Consequently, throughout its life, the stainless steel burner can be relied upon to maintain full output under the most adverse conditions. The burner fitted to the 709 Multipoint gives a thin flame and is capable of operating over a wide range of calorific values with relatively low burner pressure. Stainless steel also gives great strength and rigidity.



ASCOT

RE-DESIGNED HEAT EXCHANGER: the minimum distance between the fins has been increased with consequent benefit to maintenance life.

BUILT-IN GAS GOVERNOR

SINGLE ROTARY CONTROL GAS COCK: elimination of the horizontal main and pilot gas cocks, coupled with a *reduction in overall height* to 3′ 4″, greatly enhances appearance and gives increased flexibility in installation.

In other respects the 709 follows the successful specification of the NEA 32/6.

An alternative model—type 709B—as type 709, but incorporating a water governor and five position temperature selector. This heater is designed for mains connections where varying water pressures are encountered. Constant water flows are provided irrespective of water pressure fluctuations, the actual flow being variable according to the setting of the temperature selector.

Ascot makes the most of gas

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